DOCUMENT RESUME

ED 456 626 EF 005 878

TITLE	Head Start Center Design Guide.
INSTITUTION	Administration for Children, Youth, and Families (DHHS), Washington, DC. Head Start Bureau.
SPONS AGENCY	National Head Start Training and Technical Assistance Center, Silver Spring, MD.
PUB DATE	2000-04-00
NOTE	150p.
CONTRACT	105-96-2010
AVAILABLE FROM	For full text: http://www.hskids-tmsc.org/publications/t_guides.htm.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	MF01/PC06 Plus Postage.
DESCRIPTORS	*Educational Facilities Design; *Educational Facilities Planning; Interior Design; Preschool Education; School Construction; Site Development
IDENTIFIERS	Building Codes; Building Standards; *Project Head Start

ABSTRACT

This guide contains suggested criteria for planning, designing, and renovating Head Start centers so that they are safe, child-oriented, developmentally appropriate, beautiful, environmentally sensitive, and functional. The content is based on the U.S. General Services Administration's Child Care Center Design Guide, PBS-P140, which was intended for use in developing GSA child care centers and expanding or renovating existing ones. It discusses the groups and processes that may be involved in planning and designing a Head Start Center, standards for design and operations, and the goals and objectives for center design and operation. Other chapters include topics on planning location and space; site design; interior space design; furnishings and equipment, including references to applicable codes and regulations; interior finishes; and suggested technical criteria for the design and construction of elements and systems in the center. Appendices list commonly used terms in the construction industry, applicable Head Start Program Performance Standards and guidance, information on metric conversion, and appropriate plantings for the vicinity of centers serving children. (Contains 31 references.) (GR)

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HEAD START FACILITIES

HEAD START CENTER DESIGN GUIDE

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THE ADMINISTRATION FOR CHILDREN AND FAMILIES
ADMINISTRATION ON CHILDREN, YOUTH AND FAMILIES
HEAD START BUREAU

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This document was prepared under Contract No. 105-96-2010 of the Head Start Bureau, Administration on Children, Youth and Families, Administration for Children and Families, U.S. Department of Health and Human Services, by the National Head Start Training and Technical Assistance Resource Center, PaL-Tech., Inc., 1901 N. Fort Myer Drive, Suite 301, Arlington, VA 22209.

HEAD START CENTER DESIGN GUIDE

The Administration on Children, Youth and Families wishes to thank the U.S. General Services Administration (GSA) Child Care Center of Expertise, especially Eileen Stern and Kevin Kelly, for making their design guide available for adaptation by the Head Start Program.

GSA has constructed or renovated more than 110 child care centers located in federal buildings throughout the United States and Puerto Rico. These centers presently enroll 8,000 preschool children, infants, and toddlers.

"Designing should be accomplished through the eyes of a child. Environments should be intriguing and should not inhibit a child's ability to imagine a series of alternate meanings to objects and features. The impression created by the design should be the antitheses of an institutional setting. The center should feel like home for a child." — *GSA Child Care Center Design Guide*, June 1998

The Administration for Children and Families
Administration on Children, Youth and Families
Head Start Bureau
April 2000

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Introduction to the Guide

This chapter describes the purpose of the guide, its organization, the intended audience, and how the information can be applied. It also contains a glossary of terms, helpful web sites, and documents that readers may use for reference.

1.1 Purpose of the Guide

This design guide contains suggested criteria for planning, designing, and renovating Head Start centers. The content is based on the U.S. General Services Administration's Child Care Center Design Guide, PBS-P140, which was intended for use in developing GSA child care centers and expanding or renovating existing ones. The material contained in this GSA guide is useful and applicable in designing Head Start centers, and it has been revised with those centers in mind. However, designers must be sensitive to the wide variety of Head Start centers and the fact that they must be designed to accommodate diverse populations and classroom sizes.

The objective of this guide is to promote centers that are safe, child-oriented, developmentally appropriate, beautiful, environmentally sensitive, and functional. GSA has noted that children may be in a center up to 12,500 hours, if they start as infants and continue until entering school. The design of spaces for their use is important to their well being.

The design should allow for and be sensitive to the differences in space attributes for children and adults, as well as the differences in space usage by children in different age groups. Information about the characteristics and activities of children is included in this document to provide rationale for aspects of design. The recommendations set forth in the guide are intended to establish optimal design, and the guide provides a discussion of issues that affect design to set the benchmark.

1.2 Users of the Guide

The guide is intended to be a source of basic architectural information for individuals involved in the design of centers used for children. Readers should also refer to the Head Start Performance Standards, 45 CFR 1304, et seq. Specific users of the guide include:

Architects and Engineers (A/Es) who will provide design services under contract with local Head Start grantees. In addition, these A/Es may use the guide for pre-design planning or to assess the extent of improvements required in an existing center.

Head Start Regional Offices, which will use the guide to help interpret the level and type of features and finishes to be provided in centers.

Head Start Bureau staff, who will use the guide for reference and to offer guidance to the Regional Offices and grantees.

Head Start design team members, including administrators, teachers, other staff members, parents, and others.

Head Start staff members, such as program managers, agency administrators, financial officers, center directors, facility managers, and others concerned with facility design and management may refer to the guide, especially when they contract with private architectural firms to establish new centers or renovate existing ones. Head Start staff, parents, board, Policy Councils, and others interested in Head Start space may also find the guide useful.

Head Start Quality Improvement Centers, which will use the guide to offer technical assistance to grantees.

1.3 Web Sites and Documents

A new Web site is being established by the Region IV Quality Improvement Center as a reference desk for facilities information. A second Web site that may be useful was developed by the Department of the Army to include their facilities standardization program for child development centers. Both of these sites can be reached through links established through the Head Start Bureau's Web site: **www2.acf.dhhs.gov/programs/hsb.**

Current editions of documents that users may reference can be obtained by contacting the Head Start Publications Management Center. They include the latest edition of:

- The Head Start Act, as amended, 42 USC 9801, et seq.
- *The Head Start Facilities Manual*, Head Start Bureau, Administration on Children and Families.
- *The Head Start Program Performance Standards*, 45 CFR 1304, et seq.
- *The Head Start Deep Look Survey*, Health Resources and Services Administration, Office of Engineering Services, February 2000.
- The Individuals with Disabilities Education Act (IDEA), P.L.105-17.
- Section 504 of the Rehabilitation Act of 1973, as amended.
- Uniform Federal Accessibility Standards (UFAS), Federal Standard 795, General Services Administration.
- Americans with Disabilities Act (ADA), and the Americans with Disabilities Act Architectural Guidelines, (ADAAG), Department of Justice, Office of the Attorney General.
- *Accreditation Criteria and Procedures of the National Academy of Early Childhood Programs*, National Association for the Education of Young Children (NAEYC).
- *Developmentally Appropriate Practice in Early Childhood Programs Serving Children from Birth to Age Eight*, National Association for the Education of Young Children (NAEYC).
- *Caring for Infants and Toddlers in Groups: Developmentally Appropriate Practice*, Zero to Three, Washington, D.C., 1996.

The following documents are available from the source:

- Lead in School Drinking Water, EPA 570/89-001.
- State licensing and zoning requirements for the individual states where Head Start centers are located.
- *Handbook for Public Playground Safety*, Consumer Product Safety Commission (CPSC).
- The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings, National Park Service.
- *Fire Safety Retrofitting in Historic Buildings*, August 1989, Advisory Council on Historic Preservation and the General Services Administration.
- *Lead-Based Paint Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing*, September 1990, Department of Housing and Urban Development (HUD).
- *Radon in Water Sampling Manual* (EPA/EERF Manual-78-1), Environmental Protection Agency.
- *The Environmental Resource Guide*, with Supplements, The American Institute of Architects, 1996.

1.4 Organization of the Guide

Following are brief descriptions of each chapter of this guide.

Chapter 1: Introduction to the Guide. The chapter describes the purpose of the guide, its organization, the intended audience, and how the information can be applied. It also contains a glossary of terms and other documents readers may reference.

Chapter 2: Planning, Standards, and Goals. This chapter discusses the groups and processes that may be involved in planning and designing a Head Start center; standards for design and operations; and the goals and objectives for center design and operation.

Chapter 3: Adults and Children in the Center. This chapter identifies users of the center, the basic needs and activities of each age group, and how these needs and activities affect center design.

Chapter 4: Head Start Centers and Use of Space. This chapter summarizes the Head Start Program Performance Standards relevant to planning, design, and use of space for centers. Should conflict arise between Head Start standards and other applicable codes and regulations, the most restrictive standards will apply.

Chapter 5: Planning Location and Space. This chapter contains criteria for selecting a center location and for planning and programming the space requirements.

Chapter 6: Site Design. This chapter provides concepts and criteria for site design and the design of play yards. It identifies the types of outdoor areas required, discusses the relationships of these areas to other outdoor and indoor spaces, and provides detailed criteria for materials, features, furnishings, and equipment.

Chapter 7: Interior Space Design. The chapter provides concepts and criteria for the design of the interior spaces of a center, including entry and circulation, staff, classroom, common, and service areas.

Chapter 8: Furnishings and Equipment. This chapter provides suggestions regarding furnishings and equipment for a center, and includes references to applicable codes and regulations.

Chapter 9: Interior Finishes. This chapter discusses suggested finishes for centers.

Chapter 10: Technical Criteria. This chapter provides suggested technical criteria for the design and construction of elements and systems in the center.

Appendices. Appendix A lists commonly used terms in the construction industry; Appendix B lists applicable Head Start Program Performance Standards and guidance; Appendix C provides information on metric conversion; and Appendix D lists appropriate plantings for the vicinity of centers serving children.

Selected References. Additional materials for reader reference.

1.5 Glossary of Terms

Following is a glossary of terms used in this guide. Appendix A offers readers a list of terms commonly used in the construction business. Head Start staff planning facilities may wish to become familiar with this vocabulary.

Access - A means of approach, e.g., a road, street, or walk.

Actual Floor Area (AFA) - The space required as measured from the inside of partitions, doors, and glazing. AFA includes the area required for built-in case goods, fixtures, and equipment.

American Society for Testing and Materials (ASTM) - The organization that develops standards and provides information on characteristics and performance of materials, products, systems, and services.

Architect - A person trained and experienced in the design of buildings and coordination and supervision of all aspects of the construction of buildings.

Architect-Engineer (A/E)- An individual or firm offering professional services as both architect and engineer.

Architectural (or facility) Program - A written and sometimes graphic document specifying the architectural requirements that the building design must satisfy.

Capacity - The total number of children that may be in care at any one time as specified by the license or letter of compliance.

Center - A Head Start center operated by a grantee or delegate.

Classrooms - The architecturally defined areas that contain each group of children. Classrooms may be separated by full partitions or by partial barriers that also allow controlled visual or acoustical connections to other groups.

Contractor - One who undertakes responsibility for the performance of construction work, including the provision of labor and materials, in accordance with plans and specifications and under a contract specifying cost and schedule for completion of the work; the person or organization responsible for performing the work and identified as such in the owner-contractor agreement.

Dead End Corridor - A portion of the corridor that does not lead to an exit and which would require an occupant to retrace his or her steps to reach safe exit in an emergency. The maximum allowable length is regulated by codes.

Design - Verb: To compose a plan for a building. Noun: The architectural concept of a building as represented by plans, elevations, renderings, and other drawings.

Gross Floor Area (GFA) - The total area of all floors of a building, including main building lobbies, elevator shafts, egress stairwells, and exterior partitions measured to the exterior side of the exterior wall.

GSA - The U.S. General Services Administration, an agency of the U.S. Government, which, among other responsibilities, provides and manages building space occupied by federal agencies.

Infant - A child under 1 year of age.

Net Usable Floor Area (NUFA) - The amount of space that that must be leased to accommodate a space requirement. It is comprised of occupiable area plus any additional space, such as corridor spaces.

Occupiable Floor Area (OFA) - The portion of the building occupied by a tenant; the amount of space for which agencies are charged rent.

Parents - For the purposes of this guide, the term "parent" is understood to include relatives and guardians responsible for the child in the center.

Pre-school Child - A child who is at least 3 years old or up to compulsory school age and who does not attend kindergarten or a primary grade.

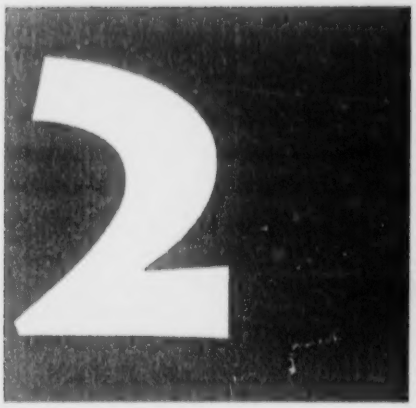
Proposal - A document prepared by an applicant for a contract and used to evaluate the professional capabilities of a business, agency, or individual against a set of criteria that may include previous working experience. The content of the proposal may be weighted on a numerical scale using a set of questions that allows the person or persons choosing the contractor to determine the best business, agency, or individual to hire for a specific job. Preference can be given to local or in-state businesses. The proposal also includes the qualifications of the lead professional and team that will be working on the project. Normally, a proposal does not include the cost of services. Cost is generally a negotiated amount after the competing proposals have been evaluated and ranked.

Self-contained Classroom or Area - A room separated by permanent walls or an area separated by permanent or portable partitions or dividers acting as a visual barrier.

Teachers - Individuals providing direct care services to children. The term, as used in the guide, does not denote level of education, training, or staff status. Teachers include head teachers, assistant teachers, caregivers, aides, and all others who interact with children on a routine basis for a major part of each day.

Toddler - A child between the ages of 1 and 3. Children between 1 and 2 years of age may be classified as younger toddlers, and children between 2 and 3 years of age may be classified as older toddlers.

Zoning - The control by a municipality of the use of land and buildings, the height and bulk of the buildings, the density of population, the relation of a lot's building coverage to open space, size and location of yards and setbacks, and the provision of any ancillary facilities.



Planning, Standards, and Goals

This chapter discusses the groups and processes that may be involved in planning and designing a Head Start center; standards for design and operations; and the goals and objectives for center design and operation.

2.1 Program Goals and Objectives

The design of a center should meet the needs of children, teachers, administrators, and parents. GSA has recommended that planners take the following steps:

- Provide a safe, nurturing learning environment.
- Support the staff's care of children by creating environments that allow them to focus on the care and nurturing of children. The design should provide features that encourage strong, positive relationships between staff and children, and should also be highly functional.
- Create an environment that comfortably accommodates the needs of well-qualified staff in order to attract and retain them.
- Facilitate family involvement in the center, particularly by the child's caregivers.
- Respond to local conditions, climate, and regional preferences in the design, while also considering the goals of the curriculum, the parents, sponsoring agency(ies), and governing boards of directors.
- Create an environment that attests to a high level of commitment in providing appropriate, well-thought-out, and beautiful environments for children.
- Design through the eyes of a child, with sensitivity to children's scale, including how they will use the space, what they will see, and what kind of experiences they will have.
- Size the classroom to use space efficiently and make supervision easy.
- Provide durable and cost-effective materials and details that will stand up under the expected intensity of use. The designer should be particularly sensitive to the cost and useful life of materials.
- Establish a distinctly child-oriented environment. The impression created by the design should be the antithesis of a typical institutional setting. In other words, the center should feel like home to the child.
- Create an accessible but cost-effective center for the disabled, staff, parents, and children.

2.2 Process

GSA has learned through experience that *owner involvement starting at the initial planning stages*, is the most valuable investment to ensure the excellence and cost effectiveness of the final result. The process starts with the planning and pre-design stages and moves to design. The early stages of design that lead to the concept can form the foundation of an excellent and functional design.

The design process for new centers or major renovation or expansion should begin with a high level of communication. To facilitate this communication, Head Start may convene a design workshop to which all interested stakeholders should be invited including building managers, Regional Office contacts, the architects and engineers, representatives from boards and policy groups or start-up committees, parents, teachers, and the grantees' administration. GSA has found that projects that start with a design workshop move ahead more effectively.

This design workshop can also be associated with a partnering session. for clarifying roles and responsibilities. Such a session typically results in a written charter that attendees are invited to sign in order to commit themselves to taking clearly defined steps for collaboration.

2.3 Standards

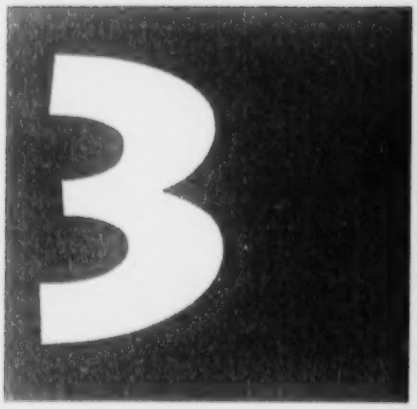
Best practice suggests that Head Start center design should comply with:

- *Uniform Federal Accessibility Standards (UFAS) and Americans with Disabilities Act (ADA).* The design should accommodate children and adults with disabilities.
- *The Historic Preservation Act.* Modification of historic buildings or buildings considered eligible for the National Register of Historic Places must follow specific guidelines. These structures include buildings:
  1. That are at least 50 years old, or will be when the renovation is completed.
  2. That are examples of a particular style.
  3. That have historic significance in terms of events to which the building is related.

The design and appearance of playgrounds near historic buildings have posed challenges.

- *The Energy Policy Act of 1992.* The center design should minimize energy use. It should use the life-cycle costing methodology in estimating and comparing investment decisions involving capital and operating costs. Mechanical systems and introduction of features, such as overhangs to diminish energy use, are examples of such considerations.

Head Start centers must also comply with state, tribal, and local licensing and zoning regulations, and any other applicable standards, such as Consumer Product Safety Standards. When state, tribal, and local licensing standards are more stringent than other criteria, those standards shall govern.



Adults and Children in the Center

This chapter identifies users of the center, the basic needs and activities of each age group, and how these needs and activities affect center design.

GSA maintains that the design of the center for the use of children should accommodate the needs of children, parents, teachers, administrators, and service personnel in a comfortable and nurturing environment. It should allow adults to care for children in settings designed primarily for use by children.

GSA advises the designer to keep the needs and convenience of busy adults in mind. At the same time, the design should provide a setting that supports the community using the centers. This will enhance a natural, home-like environment for children and increase the employee's dedication to the workplace as a quality, family-friendly environment.

3.1 Parents

GSA suggests that the design respond to the needs of parents by addressing:

- Temporary parking arrangements for drop-off and pick-up.
- Ease of navigating corridors with strollers and buggies (angled corners are recommended).
- Stroller storage.
- A clearly visible bulletin board location.
- Mailboxes dedicated to the needs of parents.
- A central relaxed place for parents to meet and chat with other parents and staff.
- Spaces designed to accommodate adults helping children with outer garments, back packs, or other personal items.
- Private space for parents and teachers to confer.
- Adequate refrigerator space to store formula and food.

Adult family members arrive with the children, pick them up, and spend time with them while at the center. Parents may meet with teachers and staff, socialize with other parents, and participate in center activities, organizations, and programs.

When parents accompany their child to the classroom, they usually help children remove and store their outdoor clothing. They may bring infants in strollers. They also leave messages for teachers and receive messages from them, usually at one location designed specifically for that purpose. They may linger to spend time with the child or to talk to the teacher before departing. The entry, reception, and classroom cubby areas provide a social setting for the parents, without disrupting the flow of activity in the classrooms. Nursing mothers might visit the center to feed their infants, and a private area should be provided for them. Parents also come to the center for conferences with teachers. Finally, parents are encouraged to participate in volunteer activities at the center, such as serving on committees or boards, participating in fundraising activities, assisting with field trips, and helping in the classroom.

3.2 Teachers

Teachers care for and supervise the children. In Head Start they promote learning and developmental activities through a curriculum designed for stimulation and development. Curriculum activities occur not only in classrooms, but also in play yards, in multiple-purpose spaces, and on excursions outside the center. Teachers are responsible for the children while at the center, including greeting them and

their parents when they arrive. Teachers ensure that only authorized individuals pick up the children at the end of the day.

Teachers also prepare curriculum materials and projects for the children and confer with the parents and administrators. Teachers may need time away from their classroom in a separate space, which may double as a workroom. They need adequate storage areas, not only for curriculum materials and supplies but also to lock up their personal effects. Because their job is demanding, the designer should focus on creating organized arrangements for teachers. This is one of the core challenges in designing a center.

GSA advises that the design can facilitate the needs of teachers by providing:

- Ample elevated wall-hung storage above children's level, but also located to avoid the possibility of adults striking their heads. All elevated storage should be designed to avoid the possibility of items falling on children.
- Elevated electrical outlets for equipment such as audio devices and other technology. (There should also be CD and tape storage.)
- Outlets convenient to elevated electronic equipment.
- Conveniently located, accessible adult toilet(s), complying with ADAAG.
- Convenient storage for teachers' outer garments and items such as boots.
- A comfortable and private place to confer with parents.
- A resource room where teaching materials and equipment can be stored in an orderly and highly visible fashion.
- Locked space to store personal belongings.
- A comfortable space for teacher use for breaks and lunches, and to prepare teaching plans and materials.
- Adequate shelving or counter space for displaying teaching materials.
- An easy means of displaying children's art projects at children's level.

3.3 Administrators

Administrators, also referred to as directors, coordinators, or site supervisors, are responsible for managing the center, supervising the teaching staff, and communicating with parents and boards of directors and Regional Offices. In small centers, the administrator may also assume a teaching role for part of the day. In large centers, the administrator will usually have a secretary or assistant to help with the administrative workload.

GSA advises that the needs of the center administrator can be met by providing:

- An optimal amount of visibility, particularly for observation of those approaching and entering the facility.
- Locked space for personal belongings.
- An adequately sized office with room for a desk, an office chair, at least two visitor chairs, filing cabinets, and space for necessary equipment including a computer, printer, copier, and fax machine.

Program staff, including the administrator, should be consulted during design for their input about work flow, filing, and equipment needs.

3.4 Service Personnel

Centers require food, laundry, janitorial service, delivery, waste and refuse removal, and maintenance services. The design must provide space and controlled access for personnel or contractors performing these services.

Infants and toddlers may use disposable diapers, and soiled diapers may be processed separately from other waste and linens. Facilities should provide space for these tasks. Refer to Section 7.7.3, Diapering Station and Storage Areas.

GSA advises that the work of the service personnel can be expedited by:

- Adequate locked space in a well-located closet for the janitor's cleaning materials.
- Space for easy supply delivery.
- Efficiently designed facilities for waste disposal.
- Adequate locked storage for toxic materials.
- Easily implemented recycling programs.
- Adequate counter space and efficient kitchen arrangement to enable easy transit of food to classrooms or other places children/parents will eat.
- Adequate refrigerator space.
- Generous, deep three-compartment sinks and gooseneck faucets with spray attachments and disposals in kitchens.

3.5 Children

Pre-school and younger children may spend 9 or more hours a day at the center. For most of their care, children remain at the facility. There are occasions when the older children go on field trips with teachers and center volunteers. Best practice suggests that the center should promote a child's optimal development by providing safe, interesting, and appropriate environments that allow the children to engage in developmentally appropriate activities.

Children's needs usually correspond to their age. Although each child develops according to his or her unique schedule, children can be characterized as belonging to general age categories of development, with each age group having a different set of needs. To meet these needs, the space for each age group will be designed differently.

The following three broad age groupings will be referred to throughout the design guide. In any individual center, actual age ranges of groups may overlap. Age ranges for purpose of center design follow:

- Infants (birth to 12 months)
- Toddlers (12 to 36 months), including sub-groups of:

  Younger toddlers (12 to 24 months)

  Older toddlers (24 to 36 months)
- Pre-school children

3.5.1 Infants

For the infant, the environment must provide many opportunities for activities throughout the day. Best practice indicates that the infant classroom needs to be warm and nurturing. Infants are usually brought in by their parents. Clothing and supplies, usually carried in a diaper bag, are placed in each infant's cubby storage space. Diapers and wipes are stored in separate compartments at the diapering area within easy reach of the changing table. Strollers or tote bags left at the center during the day should be stored on pegs or rods in storage areas. Formula and breast milk should be kept refrigerated and clearly marked.

As infants mature, their sleep needs decrease from the frequent naps of young infancy to a few naps at regular times during the day. Because each infant may have a unique schedule, a variety of activities can take place in the infant room at any given time, ranging from playing, diaper changing, and eating to sleeping, cuddling, and nursing. This variety of activities requires quiet areas that are separate from more active areas, while still allowing for adult supervision of all children.

Most infants have not begun toilet training, so frequent diaper changes are needed. When teachers are with an infant at the changing table, they also need to supervise and keep an eye on other infants. Visible connection between teacher and infant should be maintained to the maximum extent feasible. The design and location of changing tables should reflect this requirement. Teacher views into the activity area should be unobstructed while they are in the diaper changing area. Conversely, when infants are in the activity area, they must be able to see teachers. Section 7.7.3 includes information about diapering station design.

During the first year, the infant's diet progresses from nursing and bottle feeding to soft foods and finger foods. For young infants, eating is a nurturing time, with the infant either nursed by the mother or held by a teacher or parent during bottle feedings. Most infants start to eat soft foods between 5 and 6 months. At around 9 months, infants, seated in low chairs, begin to feed themselves and drink from cups. This process can be a very explorative and messy. At or near 12 months, infants eat at low, round tables. The dining atmosphere changes from a quiet, intimate environment to an active, social event.

Developmentally appropriate activities for this group include interaction with teachers, children, and other infants; experiencing the environment through all the senses; and physical movement through the space. Infants need a safe, stimulating environment where they can explore, absorb, and organize information about their world. They exercise muscles by crawling and climbing on soft surfaces and over slight level changes. They can pull to standing and practice walking by using low grab bars.

Manipulative, stimulating toys and other learning materials help infants learn about objects and enable them to develop motor coordination. Toys should be placed on low, open shelving where the infant can see and grasp them. In rooms with high ceilings, mobiles may be hung from the ceiling at least 6.6 ft. above the floor.

The classroom should offer a limited number of interesting attractions for crawling and standing infants, particularly at eye level (12 to 18 inches above the floor). The environment, including toys, aids the infants' language development. The design and scale of furnishings and equipment in the infant room should support the infants' activities, while assisting the care-giving adults. The design must allow teachers to see and hear all the infants at any given time and quickly reach any of them if the need arises. Infants also must be able to see the teacher, as they need the psychological security of a teacher's presence.

Infants spend time in their outdoor play yard under the supervision of teachers and safely apart from, but usually in view of, the older children. Infants, particularly those who are crawling and starting to walk, require outdoor opportunities to explore and move about the safe world of the infant play yard.

Teachers may assist infants in their exploration of the world by taking them on strolls through the building and outdoors. Infants, riding in groups in multi-passenger strollers, benefit from social interaction and the sensory stimulation offered by these excursions.

Conditions that will enhance the quality of care teachers can provide indoors include:

- A large-motor activity motor area away from the main circulation flow that is soft and easily cleaned, with a provision of continuous soft mat. Typically, the area should be defined by a low (12 to 18 inches) padded bumper, which may or may not be built-in, to contain the crawl area and provide for adult seating near infant's level.
- Low padded risers for level change.
- Visual contact with the exterior at an infant's eye-level.
- Cribs that can be directly observed by teachers.
- Cribs located under soft, preferably dimmer-controlled lighting.
- A limited number of toys easily accessible to infants from open shelving.
- Continuous impervious flooring in the feeding area.
- Space for infants to eat in a social environment, as opposed to being isolated in lined up high chairs.

It is essential that the architects and engineers verify dimensions and indicate the location of all major equipment, particularly cribs and feeding components, on the architectural plans. This will ensure the proper fit and clearances are achieved.

3.5.2 Young Toddlers

The toddler classroom hums with activity as toddlers quickly move through their space, involved in all the activities available to them. This environment should be stimulating, offering the child a safe, yet warm and nurturing place to spend the day. At the beginning of the day, toddlers arrive at the classroom with their parents who may assist them with removing their outdoor clothing and storing items in their cubbies. Young toddlers will usually have diaper bags to store in their cubbies and supplies to be placed at the diapering area. Older toddlers may bring toys from home, perhaps carrying them in satchels or backpacks, which can also be used to carry such things as papers and artwork home at the end of the day. Satchels and backpacks may be stored in the cubbies or within the classroom on hooks provided.

Toddlers are in the process of gaining independence and advancing in their feeding, toileting, and dressing skills. Furnishings and equipment need to be scaled for this age group to encourage growth toward independence. Older toddlers may nap only once a day on cots or mats which are stored while not in use, while younger toddlers may nap more often and need a crib in a quiet area. Most care functions take place in the classroom with the teacher's assistance. Toddlers gather at child-scaled tables for snacks and lunch. They can feed themselves with some assistance from their teachers. Toddlers are beginning toilet training and require a child-scaled toilet area in their classroom. Young toddlers still need a diapering area as well as child-sized toilet facilities.

3.5.3 Older Toddlers

Older toddlers are busy experiencing their environment and developing large muscle skills as they take part in active play. They are mastering walking and are beginning to develop running, jumping, and climbing skills. Toddler rooms need to provide stimulating opportunities for active crawling, pushing

wheeled toys, climbing in and out of play components, cruising (movement through space to view and select from a variety of activities), as well as beginning to walk and climbing up and down stairs. Toddlers tend to move about quickly, often in groups rather than individually, and the design must allow for this group action. Features such as wide access to enclosed lofts and generous, clear pathways that avoid sharp corners should be provided. Younger toddlers may need to be transported in multi-passenger strollers.

This age group is involved in other developmental activities as well, such as beginning block and social play, and space must be provided for these activities. Simple books, pictures, puzzles, and music help them develop language skills.

Toddlers thrive on exploration and creativity, enjoying fantasy activities, playing with props, and making choices. Manipulative toys and materials should be located on low, open shelving where the toddler can see and easily reach them.

Teachers in this classroom assist and interact with the toddler, encouraging the development of greater independence. Though space generally should be scaled to child size, the classroom design must also permit teachers to reach all spaces. A diaper-changing table should be provided in older toddler classrooms, even though older toddlers are typically toilet trained. This addition will help teachers cope with the occasional accident and will allow greater flexibility. Providing retractable steps that pull out from beneath the diaper-changing table, so teachers do not have to lift children is particularly important for this older age group.

While toddlers are beginning to develop, they need easy visual access to their teachers for security and comfort. A functional and nurturing feature that is highly recommended is a simple series of three to four low risers which several toddlers at a time can occupy. This arrangement also provides excellent seating for adults while they interact with several children for example by reading them a story.

Toddlers, accompanied by their teachers, spend time in their outdoor play yard, apart but not visually or acoustically separated from older children's play yards. The outdoor space offers many opportunities for activities, such as cruising, climbing, and manipulative play involving materials such as sand and water. This group also may take part in activities in a multiple-purpose area. Toddlers, with their teachers, may go outside the building on excursions, allowing for more exploration and interaction. Older toddlers may walk hand-in-hand with their teachers.

3.5.4 Pre-School Children

Pre-school children are expanding their vocabulary and developing language, small-and large-muscle coordination, and complex cognitive and social skills. Pre-school children should busily pursue all the recommended activities available to them in an environment that is safe, durable, and interesting without being overstimulating.

These children arrive at the classroom with their parents or on the school bus. After storing their outdoor clothing and personal items, they begin their day in the center. The pre-school classroom needs large, bright, unrestricted spaces, as well as intimate, quiet, carpeted areas.

Pre-school children usually need a nap or quiet time. This normally occurs in the classroom space on cots or mats that are stored when not in use. Mealtime is an opportunity for social interaction.

Children at this age are actively exploring their environment and exercising large-muscle skills by running, jumping, galloping, riding wheeled toys, and playing ball games. The pre-school classroom requires a large amount of architecturally unrestricted available space, which teachers and children can divide into smaller learning environments. The number of children in the group and the type of activities in which

they are involved affect this space requirement. Because they have typically become more independent, they tend to initiate their own activity by accessing materials and displaying their own work.

Other activities for this group are dramatic play, music, art activities, puzzles, block play, and story-telling. Children are involved in projects, including art, manipulatives, simple food preparation, simple math, problem solving, and science.

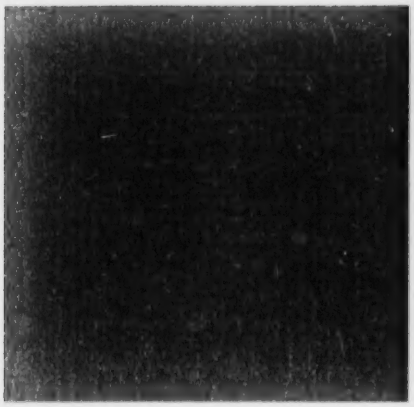
Pre-school children spend a lot of time in their outdoor play yard as weather permits and also in a multiple-purpose space, if provided. They participate in many of the same activities in the play yard as those pursued in the classroom. Children also go on field trips, either walking with their teachers or being transported.

Table 3.1: Physical Dimensions of Children

The following dimensions represent averages.[1] (Metric measures have been converted to English equivalents using the conversions in Appendix C.)

	Age (in Years)						
	Birth	0.5	1	2	3	4	5
	Dimensions (in inches)						
Body Length	20	26.4	30	34.4	38	41.6	45.7
Head Length	4.9	5.9	6.9	7.5	7.7	7.8	7.9
Head Width	3.8	4.7	5.2	5.5	5.6	5.7	5.7
Head Circumference	21.9	17.3	18.6	19.6	19.6	19.9	20.1
Trunk Length	8.3	11.6	12.6	13.6	14.3	15	15.3
Shoulder Width	5.9	7	8	8.8	9.3	9.7	10
Chest Circumference	13	17.2	18.7	20	20.5	20.8	21.7
Abdominal Circumference	N/A	16.1	17.5	18.2	8.5	20.3	20.4
Pelvic Width	4.6	4.6	5.1	5.7	6.2	6.3	7.3
Arm Length	7.6	10	12	14.6	6.4	16.7	19.8
Hand Length	N/A	N/A	3.8	4.2	4.7	4.9	5
Hand Width	1.4	1.6	1.7	1.9	2	2	2.2
Leg and Thigh Length	6.6	8.2	9.6	12.2	14.6	17.2	22.9
Sitting Height	N/A	17.6	19.2	21.2	22.5	23.5	24.5
Knee Width	1.5	N/A	2.5	2.6	2.7	2.7	2.7
Weight in Lbs.	7.5	16.7	22	28	32	38	43
Knee Pivot to Floor	N/A	N/A	N/A	9.6	10.4	11.3	12.5
Knee Width	1.5	N/A	2.5	2.6	2.7	2.7	2.7

[1]Anita R. Olds, Ph.D., Architectural Prototype Document, Commonwealth of Massachusetts, 1987; Diffrient, N., Tilley, A.R., and Bardagly, J.C., Humanscale 1/2/3 Manual, Cambridge: MIT Press, 1974; Society of Automotive Engineers, Inc., Anthropometry of U.S. Infants & Children, Michigan: 1975.



Head Start Centers and Use of Space

This chapter summarizes the Head Start Program Performance Standards relevant to planning the design and use of space. Should conflict arise between Head Start standards and other codes and regulations, the most restrictive standards should apply.

4.1 Design Implications of Program Standards

Following are discussions of the general design implications of program criteria. The design criteria should achieve the stated goals, which reflect the Head Start Program Performance Standards. A complete list of Program Performance Standards that apply to facilities is included as Appendix B.

4.1.1 Interactions among Staff and Children

GOAL: *Proper organization of the space ensures that the full program of activities can be accomplished. Successful programs take place with high-quality interactions between children and staff.* Refer to 45 CFR 1304.53(a).

Successful design allows teachers and children to interact verbally and nonverbally in large and small groups. Classroom space should not be crowded and should include low tables, several interest areas, and space for teachers to communicate individually with children. If there is adequate space, tables and counters that put children face-to-face can help encourage social interaction. All rooms should have comfortable seating for adults. The design should include chairs and may also include hammocks and built-in benches. Window seats can be particularly inviting for adult-child interaction. Space for glider chairs can be included in infant rooms to engender trust between teachers, infants, and visiting parents. The glider chairs should not allow fingers to be trapped in moving parts.

4.1.2 Facilities and Learning

GOAL: *The physical environment and facilities must be conducive to learning and reflective of the different stages of development of each child. Making facilities welcoming, accessible, comfortable and safe for all children, including those with disabilities, ensures their full participation in Head Start.* Refer to 45 CFR 1304.53(a).

Best practice indicates that classrooms should have sufficient space, equipment, and storage to support a developmentally oriented curriculum. Classrooms must be configured to allow circulation to each area while minimizing disturbance to other children engaged in an activity. Well-located storage is absolutely vital for ease of circulation and supervision. The center should have child-accessible displays of curriculum materials, either on built-in open shelving at the child's height or on movable, open, child-scale shelving units and should offer storage for toys and materials not currently being used or offered to the children. GSA advises that the design should support a balance of the following activities:

- Indoor and outdoor
- Quiet and active
- Individual and group
- Large and small motor activity
- Child and staff initiated

4.1.3 Staff-Parent Interaction

GOAL: *Parents must be invited to become integrally involved in the development of the program's curriculum and approach to child development and education.* Refer to 45 CFR 1304.21 (a)(2).

Best practice indicates that the center should provide adequate areas for private consultation between teachers and parents. A reception area for check-in may be advisable. Space in the classroom should be adequate to accommodate parent visits. Bulletin boards for parent notices may be worthwhile.

4.1.4 Skilled Staff and Center Design

GOAL: *Head Start programs must comply with section 648A of the Head Start Act and any subsequent amendments regarding the qualifications of classroom teachers.* Refer to 45 CFR 1306.21.

The quality of a center's design can play an important role in attracting and retaining skilled staff who spend so much of their time in classrooms. A properly designed center can improve staff attitude, reduce stress, and ease the workload of the teachers. It can also integrate appropriate acoustical treatment and separation of active and quiet areas to reduce noise levels. Appropriate arrangement of the diapering areas to allow easy supervision makes the staff's job easier.

GSA advises that classroom features should make it easier for teachers to perform their tasks. Conference space should be adequate to allow for staff training sessions and regular staff meetings and privacy for parent/staff conferences. A separate lounge with lockable storage space for staff personal belongings can provide staff members with a quiet break area. A lounge should include ample storage space for resources and equipment.

4.1.5 Administration and Space

GOAL: *The program is administered in accordance with the Head Start Performance Standards with attention to the needs and desires of children, parents, and staff.*

Best practice indicates that the placement of the director's office space should facilitate frequent contact with the children, parents, and staff. Adequate space should be available for parent orientation sessions. Adequate work space and file storage should be provided to support administrative tasks. The arrangement of office space should ensure adequate storage space and efficient placement of equipment.

4.1.6 Staffing and Classroom Space

GOAL: *The program is staffed in accordance with the Head Start Program Performance Standards to meet the needs of children and promote their physical, social, emotional, and cognitive development.* Refer to 45 CFR 1306.32 (a)(1-12).

The size of classrooms must allow for the optimal ratio between staff and children. Head Start Performance Standards establish the permissible staff-child ratios and group sizes. Head Start centers must also comply with local licensing and zoning regulations.

4.1.7 Physical Environment

GOAL: *Grantee and delegate agencies must provide appropriate space for the conduct of all program activities.* Refer to 45 CFR 1304.53(a)(2), 1304.53 (a)(5), and 45 CFR 1308.4.

The physical environment supports the operational quality of a center and profoundly affects the behavior and development of children, as well as the efficient functioning and sense of well being in adult caregivers. A pleasant functional environment is bound to influence the way caregivers react to the children. Likewise, since young children do not yet talk, or do not talk with adult sophistication, they are receptive to the cues the environment gives them.

The ideal environment is intriguing, rich, and challenging to children, but is not overstimulating or "flashy." It is rich in subtle visual and tactile experience, incorporating natural elements to the maximum extent possible. Best practice indicates that the center must have sufficient activity space, storage, and curriculum materials for all children, including those with disabilities. Outdoor and indoor space must be provided, with both quiet and active play areas.

4.1.8 Health and Safety

GOAL: *A safety inspection must be conducted to ensure that each facility's space, light, ventilation, heat, and other physical arrangements are consistent with the health, safety, and developmental needs of children.* Refer to 45 CFR 1304.53 (a)(10).

The center's design must comply with the requirements of the Head Start Program Performance Standards. The center must also comply with state and local codes and applicable standards. The center design should facilitate both teacher supervision and ease of maintenance. Design details should also take into account the fact that centers must be cleaned much more frequently than office space, for example. Properly designed, well-located toilet and hand-washing facilities are essential. Lockable storage should be provided for poisonous materials in each classroom, kitchen, and laundry area. Staff caring for infants must use separate diapering sinks.

In addition, there should be regular fire and other types of drills as appropriate for the community to educate staff and children about safety features, such as the proper path to exit the building.

4.1.9 Meal Service

GOAL: *Grantee and delegate agencies must ensure that nutritional services in center-based settings contribute to the development and socialization of enrolled children.* Refer to 45 CFR 1304.23.

The center design should provide ample space for storing and preparing food. Space requirements depend on whether food is catered or prepared on site. In most instances, food is prepared on site.

Food service facilities should accommodate the preparation, transport, and serving of nutritious meals and maintain the quality of food. Best practice indicates that special accommodations should be provided for infant feeding and nursing.

4.1.10 Record Storage

GOAL: *Grantee and delegate agencies must establish and maintain efficient and effective record-keeping systems to provide accurate and timely information regarding children, families, and staff, and must ensure appropriate confidentiality of this information.* Refer to 45 CFR 1304.51(g).

Space should be supplied for filing and storing children's records (in locked cabinets, if required), observations, case studies, and other reports. Best practice indicates that a staff training area, such as a conference room, should be provided.

4.2 Head Start Program Performance Standards

The Head Start Program Performance Standards, 45 CFR 1304, et seq., contain specific requirements for the use of space, physical environment, the use of functional areas, maintenance, repair, safety and

security, fireproofing, heat, cooling, lighting, cleaning, ventilation, equipment, and sewage. Appendix B covers these requirements comprehensively and includes guidance for reference.

4.3 Additional Requirements

In addition to complying with Head Start Performance Standards, Head Start centers must comply with the licensing and zoning requirements of the state or locality in which they operate, as specified in 45 CFR 1304.53 (a)(6) and 1306.30. When there is conflict between Head Start and state, tribal, and local criteria, the most stringent requirements will apply.

Licensing requirements vary among states and are constantly being updated and modified. The designer should review current state, tribal, and local requirements early in the design process.

Planning the Location and Space

This chapter contains criteria for selecting a center location and for planning and programming the space requirements.

5.1 Criteria for Center Location

The location of the Head Start center is critical to a child's attendance, safety, well being, and quality of care. Best practice indicates that location requirements can be grouped according to the following broad categories of mandatory and recommended criteria: space, environment, safety, security, accessibility, and historic preservation. Chapter 10 of this document provides further technical information about these categories. When a center is subject to state licensing standards that are more restrictive than the criteria listed below, the state standards shall govern.

5.2 Space Measurement Terms

This guide states requirements in terms of occupiable floor area (OFA) and actual floor area (AFA).

- Gross floor area (GFA) refers to the total area of all floors of a building, including main building lobbies, elevator shafts, egress stairwells, and exterior partitions measured to the exterior side of the exterior wall.
- Occupiable floor area (OFA) is the portion of the building occupied by a tenant. This is the amount of space for which agencies are charged rent.
- Actual floor area (AFA) is the area occupied by a center, as measured from inside partitions, doors, and glazing. It includes area required for built-in case goods, fixtures, and equipment.
- Usable Space refers to space available for care and use of children, excluding bathrooms, halls, kitchens, staffrooms, and storage places.

5.3 Overall Space Requirements

Following are recommendations for the interior and exterior spaces of a center:

- **Interior**: The Head Start Performance Standards, 45 CFR 1304.53(a)(5), provide that centers must have at least 35 square feet of usable indoor space per child available for the care and use of children. This is exclusive of bathrooms, halls, kitchen, staff rooms, and storage places.
- **Exterior**: The Head Start Performance Standards, 45 CFR 1304.53(a)(5), provide that there must be at least 75 square feet of usable outdoor play space per child.

GSA best practice standards:

- The play yard space should have no dimension less than 8.1 feet and a minimum size not less than 1,205 square feet. At least 50 percent of the play yard area should be exposed to sunlight at any given time during hours of operation. (See Section 6.6 for details about play yards for specific age groups).
- There is also a need for shade in the play yard, provided by plantings and other shading devices, such as gazebos and umbrellas. The center may also wish to offer access to alternate play areas for developing large-muscle skills. This alternate area may include, but is not limited to, an open courtyard or an outdoor space, such as a nearby public park, if allowed by state, tribal, and local licensing requirements.

- In areas of the country with particularly rainy weather (for instance, the Northwest), it is desirable to provide covered areas, such as generous porches, for exterior play. Interior multipurpose space is particularly valuable in areas of the country with inclement winter weather, but it should not be considered as a substitute for exterior play space.
- See Chapter 6 for a full discussion of parking requirements.

5.4 Interior Environmental Quality

GSA guidelines indicate that natural lighting is essential in centers where children receive care. It is the hallmark of nurturing, quality environments for children. At a minimum natural light should be the primary means of lighting the classroom space, though natural lighting throughout would be the ideal. Locations without any access to natural light should not be used for new centers. The absence of natural light may be a prime consideration when contemplating a relocation of an existing center.

Classroom space facing south ensures that the maximum amount and warmth of light is available to the children during their day. In addition best practice indicates:

- When locating a center within an existing building, in no case should classrooms have a window to the exterior that is less than 8 percent of the floor area. Artificial light cannot substitute for the quality of natural light. If artificial lighting is needed to enhance natural lighting, it should include a variety of fixture and lighting types with high color rendition. See Chapter 10 for artificial light requirements.
- The designer should strive to have natural lighting coming from at least two directions. Window seats also are an effective way to maximize the effects of natural light.
- The center should not be located near noise sources, such as major highways, street intersections, railroad lines, or airport flight paths without mitigation. If proximity to high levels of noise is unavoidable, acoustical control measures are necessary as discussed in Chapter 10.
- Maximum acceptable noise levels depend on the area of the center subjected to the noise and whether the sound is continuous or intermittent. Children, and especially infants, are sensitive to noise, particularly unexpected or intermittent loud noise. See Chapter 10 for guidelines on maximum acceptable noise levels.
- The center should not be exposed to fumes or dust from industrial operations and vehicles, furnace and incinerator exhaust, mists from cooling towers, or other similar pollutants. Avoid placing centers near exhausts from food processing and waste handling operations, loading docks, or similar sources of unpleasant odors.
- The site should have desirable natural features, such as trees, south-facing slopes, and views of natural and pleasant man-made features or interesting urban vistas.
- The local climate should be considered when choosing a center location, including wind patterns and solar angles.
- Proposed major future construction projects within the building and adjacent to the site should be considered. If possible, locations that may have extended disruptive high noise levels and poor air quality should be avoided.

5.5 Health and Safety

The following standards reflect best practice:

- The building structure should comply with area limitations, mixed-use separation, and construction requirements in state, tribal, or local codes and other standards that apply.
- The center location should provide direct at-grade exit, with a minimum of two means of exit from each floor, if the center is located on two floors.
- The center should be away from hazardous conditions or occupancies. This includes contaminants from hazardous materials, such as lead and PCBs. The site, including the playground, should be certified as free of these contaminants before design begins.
- The location should meet criteria to prevent exposure to Legionella pneumophilia.
- The location should allow for the safe arrival and departure of children.
- The location should be free of hazards, including fountains, wells, open pools, unprotected ledges, drop-offs and cliffs, and dangerous equipment. Play areas must not have open drainage ditches or openings to storm sewer systems.
- The location should be free of rodents, hazardous insects, vermin, and toxic plants.
- The area occupied by the center should have operable windows that allow ventilation. Awning and hopper windows below head level on the exterior or interior of the building should not be used.

5.6 Security

Best practice indicates:

- The center location should be readily identifiable and accessible to emergency response personnel.
- The location should allow for all exits and entrances to be secured. Normally, entry and exit should be restricted through one main entrance and perhaps an additional service entry. Where possible, entry points should be fully visible from inside the center.
- The location should be a defensible space with a secure perimeter and controlled access.

5.7 Approach and Access

Best practice indicates that:

- The center's layout must accommodate adults with disabilities. The center must comply with the UFAS (Uniform Federal Accessibility Standards) and ADA (Americans with Disabilities Act). Where there is real or apparent conflict, the center must comply with the more stringent of the two standards.
- The play yard should be directly accessible from the building or as close to it as practical. If the site cannot support a play yard, consider using a public or a private park within walking distance.

- The center should not be close to busy streets and intersections. Otherwise the designer should devise mitigation measures, such as bollards, to lessen the effect of congestion and to increase safety, especially at playgrounds near busy intersections. Intersections where traffic is heavy require particular attention.
- The center location should provide ease of short-term, drop-off parking for parents and buses as they bring their children to the center or take them home. Sufficient parking spaces are needed to allow parents time for brief conversations with teachers. This parking is to be as close to the center as possible. Spaces should be available for staff, collaborators, and parents.
- If possible, the center location should be within walking distance of public transportation.
- Ideally, classrooms should have direct access to the play yard.

5.8 Historic Preservation

The decision to locate a center in a National Historic Building must take into consideration historic preservation requirements. Playground location is also a vital consideration in assessing the effect of the center location on historic structures or neighborhoods.

5.9 Space Types

The following terms will be used throughout this guide to identify and define the major spaces in the center and group them according to the users:

5.9.1 Classrooms

A classroom is an architecturally defined area containing a group of children and their teacher(s). Classrooms may be separated by walls or full partitions that allow controlled visual or acoustical connections to other groups. However, best practice indicates that interior viewing windows, particularly at children's height, could be located both adjacent to corridors and between classrooms. The classrooms themselves should be as open as possible, allowing supervision and the penetration of natural light.

Classrooms contain the spaces required for all recommended activities, as well as for personal care. Adequate space is also necessary for storing children's and teacher's personal items, curriculum materials, supplies, and equipment. Space should conform to Head Start performance standards and local licensing requirements.

5.9.2 Common Spaces

Spaces shared by more than one group are included in this category. The designer needs to be cognizant that the child may spend very few hours of the day in his or her home: the center becomes the home away from home for the child, and the design should convey this impression. A common area that feels like the core of the center is an excellent organizing concept and one that will dispel an institutional feeling. This may be an area of circulation that allows a stopping place for social interaction. However, GSA advises that it should not be the multipurpose room. Circulation through the multipurpose room has proven to be an undesirable design feature.

Other common areas may consist of one or more of the following: a multipurpose area, a large muscle activity area, a meeting/gathering area, a parent/staff conference area, and a separate sick bay, if the latter is required to meet local licensing requirements.

5.9.3 Play Yards

Play yards are outdoor extensions of the classrooms, providing many of the same opportunities as indoor spaces. They should provide for a variety of developmentally appropriate activities and include storage for curriculum equipment as well as wheeled toys, trikes, and wagons. Spending time on the playground is usually the preferred activity of children. Therefore, to the greatest extent possible, the designer should arrange easy access to the playground and other spaces for play from the classroom. (See Chapter 6).

5.9.4 Parent Spaces

Spaces within the center that are used by parents include the entry, reception/living room area, conference room, and classroom (used for observing, visiting, conferring with teachers, and feeding infants). Parents should have direct access to a staff toilet room.

5.9.5 Staff Spaces

The spaces designed for use by teachers and directors may include the classroom and play yard areas, the entry and reception areas, offices, conference and lounge spaces, resource storage, and adult toilets.

5.9.6 Service Spaces

The spaces allocated for service and support include the kitchen and food storage, laundry, janitor's closet, and electrical/mechanical and telephone equipment room.

5.9.7 Circulation

This term applies to the space dedicated to the major pathways connecting all the interior spaces.

5.10 Example Space Programs

The following GSA tables provide examples of space requirements for classroom and non-classroom space for centers with enrollment capacities of 74, 94, and 148 children, respectively. GSA arrived at these suggested space requirements after consultation with child care experts. Some room sizes, including classroom sizes, clearly exceed Head Start's minimum requirements, but should be considered when designing Head Start child care centers. Of course, designers should adjust the OFA and AFA to the anticipated enrollment capacity for specific projects.

Table 5.1: Example Space Program for 74 Children

Space Title	Unit Size AFA	Unit Size OFA	Total OFA
Staff and Parent Areas	Actual Floor Area	Occupiable Floor Area	
Public Area			
Vestibule	.5 sq. ft. AFA /Child	49.5 sq. ft.	49.5 sq. ft.
Reception	1 sq. ft. AFA/child	+25%	89.3 sq. ft.
Staff Area			
Director's Office	1.7 sq. ft. AFA/Child	164.6 sq. ft.	164.6 sq. ft.
Sick Bay (If Required)	.5 sq. ft. AFA/Child	+25%	49.5 sq. ft.
Staff Lounge/Work	2 sq. ft. AFA/Child	+25%	189.4 sq. ft.
Parent/Staff Conference	1.5 sq. ft. AFA/Child	+25%	140 sq. ft.
Adult Toilet	.76 sq. ft. AFA/Child	12.4 sq. ft.	62.4 sq. ft.
Central Storage	1.5 sq. ft. AFA/Child	+25%	140 sq. ft.
Sub-Totals for Staff and Parent Areas		11.9 sq. ft. OFA/Child	884.5 sq. ft.
Service Areas			
Laundry	1 sq. ft. AFA/Child	+25%	89.3 sq. ft.
Warming/Central Kitchen	3 sq. ft. AFA/Child	+25%	178.7 sq. ft.
Janitor's Closet	39.8 sq. ft. AFA/Child	+25%	49.5 sq. ft.
Telephone Closet	8 sq. ft. AFA/Child	10 sq. ft.	10 sq. ft.
Sub-Totals for Service Areas		5.7 sq. ft. OFA/Child	427.5 sq. ft.
Common Spaces			
Multi-purpose/Large Motor Activity, optional, but required in areas of the country with more than 36 inches of annual precipitation or temperatures below 39° F as a normal January daytime high temperature. Should be sized for 20 children minimum.		37.7 sq. ft. OFA/Child	236.3 Sq. ft.
Play yard storage		2 sq. ft. OFA/Child	151.7 sq. ft.
Sub-Totals for Common Spaces		12.3 sq. ft. OFA/Child	905 sq. ft.

Space Title	Unit Size AFA	Unit Size OFA	Total OFA
Classrooms			
Infant Areas			
Classroom of 8 Infants		107.6 sq. ft. OFA/Child	860.8 sq. ft.
Young Toddler Areas			
Classroom of 12 Younger Toddlers		90.4 sq. ft. OFA/Child	1,086.8 sq. ft.
Older Toddler Areas			
Classroom of 14 Older Toddlers		79.6 sq. ft. OFA/Child	1114.7 sq. ft.
Pre-School Areas			
Classroom of 20 Pre-School Children		75.3 sq. ft. OFA/Child	1,506.4 sq. ft.
Classroom of 20 Pre-School Children		75.3 sq. ft OFA/Child	1,506.4 sq. ft.
Sub-Totals for Classroom Spaces		82 sq. ft. OFA/Child	6075 sq. ft.
Total Center OFA		82 sq. ft. OFA/Child	8,291.7 sq. ft.*
		(102.2 sq. ft. OFA/Child)	(7,538.5 sq. ft.**)
Exterior covered area, where possible			753.2 sq. ft.

* with multipurpose room included

** without multipurpose room

Table 5.2: Example Space Program for 94 Children

Space Title	Unit Size AFA	Unit Size OFA	Total OFA
Staff and Parent Areas			
Public Area			
Vestibule	.5 sq. ft. AFA/Child	62.4 sq. ft.	62.4 sq. ft.
Reception	1 sq. ft. AFA/Child	+25%	114 sq. ft.
Staff Area			
Director's Office	1.7 sq. ft. AFA/Child	208.7 sq. ft.	208.7 sq. ft.
Assistant's Workstation			
(In Centers over 80 Children)	.86 sq. ft. AFA/Child	100 sq. ft.	100 sq. ft.
Sick Bay (If Required)	79.6 sq. ft. AFA/Child	+25%	100 sq. ft.
Staff Lounge/Work	2 sq. ft. AFA/Child	+25%	240 sq. ft.
Parent/Staff Conference	1.5 sq. ft. AFA/Child	+25%	177.5 sq. ft.
Adult Toilet	.65 sq. ft. AFA/Child	79.6 sq. ft.	
Central Storage	1.5 sq. ft. AFA/Child	+25%	177.5 sq. ft.
Sub-Totals for Staff and Parent Areas		12.9 sq. ft. OFA/Child	1,260 sq. ft.
Service Areas			
Laundry	1 sq. ft. AFA/Child	+25%	114 sq. ft.
Warming/Central Kitchen	3 sq. ft. AFA/Child	+25%	354 sq. ft.
Janitor's Closet	10. 8 sq. ft. AFA/Child	+25%	100 sq. ft.
Telephone Closet	8 sq. ft. AFA/Child	10 sq. ft.	10 sq. ft.
Sub-Totals for Service Areas		6.13 sq. ft. OFA/Child	579.2 sq. ft.
Common Spaces			
Multi-purpose/Large motor activity, optional, but required in areas with more than 36 in. of annual precipitation or temperatures below 39° F as a normal January daytime high temperature. Should be sized for 20 children minimum.		37.7 sq. ft. OFA/Child	236.3 sq. ft.
Play yard storage		2 sq. ft. OFA/Child	192.6 sq. ft.
Sub-Totals for Common Spaces		10 sq. ft. OFA/Child	945.8 sq. ft.

Space Title	Unit Size AFA	Unit Size OFA	Total OFA
Classrooms			
Infant Areas			
Classroom of 8 Infants		107.6 sq. ft. OFA/Child	860.8 sq. ft.
Younger Toddler Areas			
Classroom of 12 Younger Toddlers		90.4 sq. ft. OFA/Child	1,086.8 sq. ft.
Older Toddler Areas			
Classroom of 14 Older Toddlers		79.6 sq. ft. OFA/Child	1,114.7 sq. ft.
Pre-School Areas			
Classroom of 20 Pre-School Children		75.3 sq. ft. OFA/Child	1,506.4 sq. ft.
Classroom of 20 Pre-School Children		75.3 sq. ft OFA/Child	1,506.4 sq. ft.
After-School Areas			
Classroom of 20 After-School Children		75.3 sq. ft OFA/Child	1,506.4 sq. ft.
Sub-Totals for Classroom Spaces		75.3 sq. ft OFA/Child	7581.5 sq. ft.
Total Center OFA		111.9 sq. ft. OFA/Child	10,365.1 sq. ft. with multipurpose
		(102.2 sq. ft. OFA/Child)	(9,611.9 sq. ft. without multipurpose)
Exterior covered area, where possible			753.2 sq. ft.

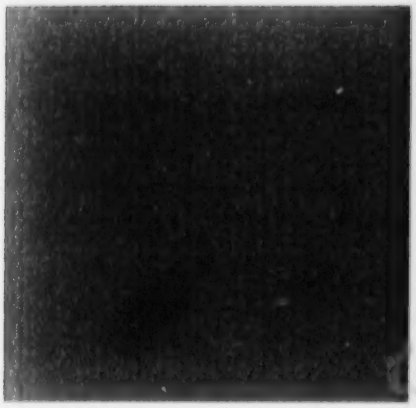
Table 5.3: Example Space Program for 148 Children

Space Title	Unit Size AFA	Unit Size OFA	Total OFA
Staff and Parent Areas			
Public Area			
Vestibule	.5 sq. ft. AFA/Child	79.6 sq. ft.	79.6 sq. ft.
Reception	0.09 m2 AFA/Child	+25%	79.6 sq. ft.
Staff Area			
Director's Office	1.7 sq. ft. AFA/Child	329.3 sq. ft.	329.3 sq. ft.
Assistant's Workstation (in Centers over 80 Children)	79.6 sq. ft. AFA/Child	100 sq. ft.	100 sq. ft.
Sick Bay (If Required)	79.6 sq. ft. AFA /Child	+25%	100 sq. ft.
Staff Lounge/Work	2 sq. ft. AFA/Child	+25%	378.8 sq. ft.
Parent/Staff Conference	.1.5 sq. ft. AFA/Child	+25%	278.7 sq. ft.
Adult Toilet	.65 sq. ft. AFA/Child	120.5 sq. ft.	120.5 sq. ft.
Central Storage	1.5 sq. ft. AFA/Child	+25%	278.7 sq. ft.
Sub-Totals for Staff and Parent Areas		11.8 sq. ft. OFA/Child	1,845.34 sq. ft.
Service Areas			
Laundry	1sq. ft. AFA/Child	+25%	179.7 Sq. ft.
Warming/Central Kitchen	3 sq. ft. AFA/Child	+25%	557.4 sq. ft.
Janitor's Closet	10.8 sq. ft. AFA/Child	+25%	100 sq. ft.
Telephone Closet	.11 sq. ft. AFA/Child	10 sq. ft.	10 sq. ft.
Sub-Totals for Service Areas		6.13 sq. ft. OFA/Child	911.4 sq. ft.
Common Spaces			
2 Multi-purpose/Large Motor Activity, optional, but required in areas of the country with more than 36 in. of annual precipitation or temperatures below 39° F as a normal January day-time high temperature.		37.7 sq. ft. OFA/Child	1,506.4 sq. ft.
Play yard storage		2 sq. ft. OFA/Child	302.4 sq. ft.
Sub-Totals for Common Spaces		12.9 sq. ft. OFA/Child	1,808.8 sq. ft.

Space Title	Unit Size A	Unit Size OFA	Total OFA
Classrooms			
Infant Areas			
Classroom of 8 Infants		107.6 sq. ft. OFA/Child	860.8 sq. ft.
Classroom of 8 Infants		107.6 sq. ft OFA/Child	860.8 sq. ft.
Younger Toddler Areas			
Classroom of 12 Younger Toddlers		90.4 sq. ft. OFA/Child	1086.8 sq. ft.
Classroom of 12 Younger Toddlers		90.4 sq. ft. OFA/Child	1086.8 sq. ft
Older Toddler Areas			
Classroom of 14 Older Toddlers		79.6 sq. ft. OFA/Child	1114.7 sq. ft.
Classroom of 14 Older Toddlers		79.6 sq. ft. OFA/Child	1114.7 sq. ft.
Pre-School Areas			
Classroom of 20 Pre-School Children		75.3 sq. ft. OFA/Child	1,506.4 sq. ft.
Classroom of 20 Pre-School Children		75.3 sq. ft. OFA/Child	1,506.4 sq. ft.
Classroom of 20 Pre-School Children		75.3 sq. ft. OFA/Child	1,506.4 sq. ft.
After-School Areas			
Classroom of 20 After-School Children		75.3 sq. ft. OFA/Child	1,506.4 sq. ft.
Sub-Totals for Classroom Spaces		82.1 sq. ft. OFA/Child	12,150.2 sq. ft.
Total Center OFA		111.9 sq. ft. OFA/Child	16,645.7 sq. ft./ multipurpose)
		(107.6 sq. ft. OFA/Child)	(15,892.5 sq. ft. no multipurpose)
Exterior covered area, where possible			153.2 sq. ft.

Table 5.4: Example Classroom Spaces

Space Title	Unit Size AFA	Unit Size OFA	Total OFA	Notes
Infant Areas				
Classroom of 8 Infants				
Activity Area	.57 sq. ft. AFA/Infant	+25%	247 sq. ft.	
Support Areas				
Cubby Storage	6 sq. ft. AFA/Infant	+25%	60.3 sq. ft.	
Food Preparation	3 sq. ft.	37.6 sq. ft.	37.6 sq. ft.	
Eating/Table Area	39.8 sq. ft.	49.5 sq. ft.	49.5 sq. ft.	
Nursing	20 sq. ft.	24.7 sq. ft.	24.7 sq. ft.	
Sleeping	29.7 sq. ft. AFA/Infant	+25%	300 .2 sq. ft.	
Diapering Station & Storage	39.8 sq. ft.	49.5 sq. ft.	49.5 sq. ft.	
Adult Toilet	49.5 sq. ft.	62.4 sq. ft.	62.4 sq. ft.	
Storage	3 sq. ft. AFA/Infant	+25%	30.1 sq. ft.	
Sub-Totals for Infant Areas		107.6 sq. ft. OFA/Child/860.8 sq. ft.		
Younger Toddler Areas				
Classroom of 12 Younger Toddlers				
Activity Area	45.1 sq. ft. AFA/Child	+25%	677.9 sq. ft.	
Support Areas				
Cubby Storage	6 sq. ft. AFA/Child	+25%	90.4 sq. ft.	
Food Preparation	30.1 sq. ft.	37.6 sq. ft.	37.6 sq. ft.	
Napping	44.1 sq. ft.	54.9 sq. ft.	54.9 sq. ft.	
Hand washing Sink	20 sq. ft. AFA/Sink	50.6 sq. ft.	50.6 sq. ft.	(2 Sinks)
Toddler Toilet	30.1 sq. ft. AFA/Toilet	75.3 sq. ft.	75.3 sq. ft.	(2 Toilets)
Diapering Station & Storage	39.8 sq. ft.	49.5 sq. ft.	49.5 sq. ft.	
Storage	3 sq. ft. AFA/Child	+25%	45.2 sq. ft.	
Sub-Totals for Younger Toddler Areas		90.4 sq. ft. OFA/Child/1,084.6 sq. ft.		



Site Design

This chapter provides concepts and criteria for site design and the design of play yards. It identifies the types of outdoor areas required, discusses the relationships of these areas to other outdoor and indoor spaces, and provides detailed criteria for materials, features, furnishings, and equipment required in these spaces.

Space Title	Unit Size AFA	Unit Size OFA	Total OFA	Notes
Older Toddler Areas				
Classroom of 14 Older Toddlers				
Activity Area	45.1 sq. ft. AFA/Child	+25%	809.1 sq. ft.	
Support Areas				
Cubby Storage	6 sq. ft. AFA/Child	+25%	104.4 sq. ft.	
Children's Art Sink	20 sq. ft.	24.7 sq. ft.	24.7 sq. ft.	
Children's Hand washing Sink	20 sq. ft. AFA/Sink	50.6 sq. ft.	50. 6 sq. ft.	(2 Sinks)
Children's Toilet	30.1 sq. ft. AFA/Toilet	75.3 sq. ft.	75.3 sq. ft.	(2 Toilets)
Diapering Station & Storage	39.8 sq. ft.	49.5 sq. ft.	49.5 sq. ft.	
Storage	3 sq. ft. AFA/Child	+25%	52.7 sq. ft.	
Sub-Totals for Older Toddler Areas		82.9 sq. ft. OFA/Child/1,084.6 sq. ft.		
Pre-School Areas				
Classroom of 20 Pre-School Children				
Activity Area	45.1. AFA/Child	+25%	1,129.8 sq. ft.	
Support Areas				
Cubby Storage	6 sq. ft. AFA/Child	+25%	1,50.6 sq. ft.	
Children's Art Sink	20 sq. ft.	24.7 sq. ft.	24.7 sq. ft.	
Children's Hand washing Sink	20 sq. ft. AFA/Sink	50.6 sq. ft.	50.6 sq. ft.	(2 Sinks)
Children's Toilet	30.1 sq. ft. AFA/Toilet	75.3 sq. ft.	75.3 sq. ft.	(2 Toilets)
Storage	3 sq. ft. AFA/Child	+25%	75.3 sq. ft.	
Sub-Totals for Pre-School Areas		75.3 sq. ft. OFA/Child/1,506.4 sq. ft.		
After-School Areas				
Classroom of 20 After-School Children				
Activity Area	45.1 sq. ft. AFA/Child	+25%	1 129.8 sq. ft.	
Support Areas				
Lockers	6 sq. ft. AFA/Child	+25%	1 50.6 sq. ft.	
Children's Art Sink	20 sq. ft.	26.9 sq. ft.	25.8 sq. ft.	
Boys Toilet with Sinks	49.5 sq. ft.	62.4 sq. ft.	62.4 sq. ft.	
Girls Toilet with Sinks	49.5 sq. ft.	62.4 sq. ft.	62.4 sq. ft.	
Storage	3 sq. ft. AFA/Child	+25%	75.3 sq. ft.	
Sub-Totals for After-School Areas		75.3 sq. ft. OFA/Child/1,506. 4 sq. ft.		

6.1 Concepts for Site Design

Best practice indicates that the conceptual site design for a Head Start center should be integrated with the design of the site or main building in which it will be located, including vehicular and pedestrian movement, parking, entry, service points, and constructed or landscape features.

The site should be designed according to general site design principles, including orientation, grading and landscape form, aesthetics, construction, plant material selection, lighting, signage, and amenities. Before the site is selected, the soil should be tested for the presence of dangerous contaminants such as lead and PCBs. The site should then be monitored periodically, under the direction of the environmental safety staff, to ensure that it does not become subsequently contaminated, especially by lead. This is particularly important in urban areas or where there is a heavy concentration of automobiles or industrial facilities. Also, proposed playground locations adjacent to old structures, which may be painted with lead paint or contain other hazards, should be investigated.

Five conceptual aspects of site design relating to centers include: a) entry and circulation; b) parking; c) service; d) safety and security; and e) play yards.

6.1.1 Context

It is important to consider the context in which the center and its associated playground are located. The designer should realize that the building is rarely an object alone. Rather, the primary objective of the site and exterior design should be to enhance the existing context. The design team should address this aspect of the design at the concept level.

6.2 Entry & Circulation

The standard for entrances, parking, service, and security are addressed below.

6.2.1 Entry Approach

Best practice indicates that the design of the center should incorporate a point of reference or landmark that serves as a welcome and a transition. The center entrance should be separated from the main entrances to the building and from service areas, unless the center is housed in a multi-purpose facility. A transition, such as a porch, could be at the main entry. This might be combined with a covered walkway, for instance, to connect with short-term parking and protect arriving children and parents from inclement weather.

In cold climates, there should be a canopy or recess at exit doors to ensure that doors can completely open without obstruction from snow and ice. Drop-off areas should be arranged so that a child and adult may exit the vehicle from the pedestrian side and proceed directly to the center without crossing traffic, or crossing in front of or behind vehicles.

6.2.2 Parking

Short-term parking should be provided for parents bringing their children to the center. There also should be accommodation for the disabled to park in this area. Enough parking spaces are needed to allow parents time for brief conversations with teachers.

Short-term parking for the center should be separated from other tenant parking and as close to the center as possible. Best practice indicates that the arrangement should minimize the risk to pedestrians and allow safe flow of vehicles.

As the site configuration and location allow, the employee parking spaces should be as close to the center as possible for ease of access and for safety. This will be particularly important in winter months when staff members may be required to leave the center after dark. Ideally, an unobstructed line of sight should be provided between the interior of the center director's office through the center entrance and into the short-term parking area.

The parking should never be arranged in a way that forces children or persons in wheelchairs to proceed behind parked cars. Walkways in front of vehicles must be protected by tire guards, bollards, or some other means to prevent any portion of a vehicle from advancing into the walkway. In addition, parking should be located away from busy intersections or vehicle circulation routes.

For emergency purposes, at least one parking space should be provided as near to the center entrance as possible. Disabled employees should be accommodated with one or more properly sized parking spaces as near the center as possible.

6.2.3 Service

Centers that will occupy part of an existing building will typically make use of that building's dock space and service access. In some situations, a center must provide its own service access, though a complete dock may not be necessary.

Note that each center should have a minimum of two egress points, and at least one should be designated as a service entry and be separate from the main entry. Service access for sanitation removal, food and supply delivery, and small van deliveries, if these are not provided by the main building, should be separated from short-term and staff parking. Likewise, a sanitation dumpster with screening may be necessary, if the main building does not provide one. Two service parking spaces may be desirable to avoid conflicts in deliveries.

6.2.4 Security

Best practice indicates that the center should be separated from public areas by buffer zones. Buffer zones are useful because they offer the center staff the time to observe individuals as they approach the center. In addition, they help shield children from unwanted wind, noise, and other disruptions. The center location and local conditions may necessitate the use of fences and screens to block views from outside the center. These should be sensitively designed to enhance the way the center relates to it's context.

6.3 Concepts for Play Yard Design

The activity spaces in play yards are largely determined by the play yard's initial landscape architectural features. Individual play areas should offer a range of developmentally appropriate activities for social, emotional, intellectual, and physical development. All play areas should be designed according to the guidelines in the most recent edition of the *Handbook for Public Playground Safety* by the Consumer Product Safety Commission.

Best practice indicates that play yards should serve as extensions of classroom spaces, especially where temperate climate allows an easy flow of children and staff in and out of the exterior space. Play yards should be integrated, to the greatest extent possible, into the overall design of the center. Within a central play yard, separate play areas are necessary for Head Start and Early Head Start.

Some states require a separate fenced play yard for infants and toddlers. Even without such complete separation, individual play areas can be developed to serve each of the following age classifications:

- Infants
- Toddlers
- Pre-school children

Within the play areas, spaces should be developed to support and promote each of the following activity types and offer flexibility for many others:

- Sand/water play
- Art activities
- Dramatic play
- Large muscle play

In addition, equipment storage should be directly accessible from the play yard.

6.4 General Design Concept

GSA offers the following guidance:

Areas within the play yards should be zoned by activity type, age group, and landscape character. Play areas for infants and toddlers should be physically separated from play areas for older children while retaining some visual tie.

Typically, fencing with no sharp edges should be used to separate the play areas. It should terminate 3.3 ft. above the ground and should be visually compatible with the perimeter fence or wall. The tops of fencing and spacing of pickets should not present a hazard to children or adults. Tops of fence pickets should terminate at a horizontal member to protect against puncturing hazards. Horizontal elements that can be used as ladders should not be included in the design of the fence. Walls adjacent to playgrounds should not be accessible for climbing. Otherwise, children may attempt to leave the center and could injure themselves in a fall.

6.4.1 Location

Activity areas within the play yard should be placed near an element that can be used as a point of reference by both children and teachers as they move throughout the different play areas. Entrance points, transition and staging areas, storage facilities, seating areas, overhead structures, trees, gathering areas, and larger play structures may all function as points of reference.

6.4.2 Separation

Specific play areas may be defined by circulation paths, barriers, screens, structures, play equipment, plantings, landscape forms, grade changes, and open buffer areas. Separation of one play area from another should be subtle, leaving some visual, audible, and physical connections intact.

Infant/toddler play yards must have a physical separation from preschoolers; for instance, a 3-ft. picket fence with rounded corners and no splinters would be an appropriate delineation.

6.4.3 Transitions

The link between interior and exterior spaces may be a transitional area, such as a deck or an open vestibule. Transitional areas allow for a blend of interior and exterior environments, and can function as a point of departure or staging area for playground excursions.

6.4.4 Porches

Porches are desirable elements, particularly in areas having weather that can be problematic for outdoor play, such as the Northwest due to its abundant rainfall, or the Great Lakes region due to its abundant snow. Porches easily lend themselves to nurturing activities and can be valuable for use on days when the weather will not permit full use of the playground.

In areas with moderate temperatures for much of the year, such as Southern California, porches can be used as activity areas for virtually the entire year. Porches are the architectural symbol par excellence of a nurturing environment and provide a transition to the natural elements which children often miss. They are also substantially less expensive than interior, conditioned space.

6.4.5 Shade

It is advisable to provide shaded areas in play yards, but to allow at least half of the play yard to be exposed to direct sunlight.

6.4.6 Circulation

Circulation within the play yard should allow movement throughout the various play areas. Dedicated pathways and routes should be provided for play with wheeled toys. The circulation pathway is the primary element that can tie the entire play yard together. Circulation pathways should be wide enough to accommodate movement of wheeled vehicles in both directions, or movement should be restricted to one direction.

The play yard should have a minimum of two access points, one from the classroom into the play yard and one from the play yard outside to the site. The access point from the play yard to the site beyond should allow the retrieval of play equipment and departure from the building in emergencies.

All access points should be controlled and readily visible for security purposes. The design of the playground should accommodate the movement of disabled children and adults through the play yard to

the play events. The design also should accommodate the movement of maintenance equipment into the play yard.

6.4.7 Site Furniture

It is advisable to provide seating in a shaded area with views to other areas of the play yard. Children and teachers may sit and observe the activities of the play yard. Children may talk with each other or with their teachers in a relaxed fashion or perhaps have a story read to them. Tables and chairs, a bench, or a picnic table may be furnished, allowing children, and occasionally parents, to eat their lunch or snack, or to occupy themselves with drawing and other activities.

Easels for open-air painting are very desirable and help to soften the feeling of centers whose surroundings may not easily promote the impression of a natural environment. There should be adequate approach and fall zones for equipment and furniture, as prescribed by the current edition of *Handbook for Public Playground Safety*, issued by the Consumer Product Safety Commission. (See Section 6.7.6).

6.4.8 Storage

Storage facilities should be easily discernible and have a unique, easily understood symbol indicating the purpose. Storage facilities provide an opportunity for children to learn organization and cooperation skills. Children acquire a sense of responsibility by learning to return toys and tools under the direction of the caregiver to the correct storage areas when they are finished playing.

There should be visibility into the storage area. Exterior storage should have locks that operate at the exterior of the door but can be released from inside.

6.5 Types of Outdoor Play Areas

6.5.1 Sand and Water Play

Sand and water play facilities allow children to learn concepts, pretend, and to project their ideas. Facilities can enhance children's make-believe, play, and social skills. Sand and water play should be accessible to children.

Best practice indicates that sand and water tables should have play surfaces at children's height, allowing them to dip out a portion of sand or water onto a stable surface. It is wise to allow play space and storage for props such as spoons, shovels, pails, plastic vehicles and animals, containers, and buckets. These props can add to the quality of play experiences.

The need for a child-scaled drinking fountain on the playground should be determined during design. In particularly warm areas, there will be a greater need for water fountains. In addition, it is wise to provide a hose bib connection for water play and for filling wading pools accessible from the circulation path. It is also desirable to emphasize the source of the water through the design, since it is such an important part of the play yard.

6.5.2 Dramatic Play

Dramatic play is the most dynamic activity in the play yard, since children often use many different areas of the play yard as stage settings. Ample opportunities should be provided for children to engage in role-playing and make-believe activities.

Best practice indicates that playhouse structures should have seating, adequate play areas, and storage to allow use of a wide variety of props, such as boards, scrap lumber, dress-up clothes, cooking utensils, tarpaulin, banners, signs, and other items that help ensure the high quality of dramatic play. The dramatic play area should be adjacent to and incorporate paths and parking areas for wheeled toys.

6.5.3 Large Muscle Play

Large-muscle play areas provide for the physical development of children. They should offer opportunities for climbing and riding wheeled toys, as well as running, jumping, sliding, and balancing. Fixed equipment, such as a superstructure play piece, and slides, encourage children to explore the limits of their physical abilities through varying levels of difficulty and challenge. Berms that create small hills also provide challenge and are cost effective. They also provide visual interest and a connection to nature.

The degree of difficulty, challenge, or risk should be obvious to children involved in any activity. Recognizable challenge or risk is good, but hidden or unforeseen risk is dangerous and often results in injuries. Refer to the CPSC *Handbook for Public Playground Safety*. Best practice indicates that the play yard should not contain:

1. Metal slides, which can burn children when they become hot.
2. Enclosed tunnel slides, which make observation difficult and can allow one climbing child above the enclosed tunnel to fall on top of another at the tunnel exit.
3. Traditional seesaws, which can result in injuries when one child unexpectedly jumps off.
4. Spring toys, which can hit a child's head as he or she walks by the relatively heavy, moving toy.
5. Swings that may cause falls.

Small berms and hills, large rocks, stumps, trees, or bushes provide settings and obstacles for children to climb over, jump on, dodge around, or hide behind. All of these can present desirable challenges. Play with wheeled toys, such as tricycles and wagons, helps develop coordination and physical strength. The large space required and the boisterous character of this play dictate that this area be situated away from quieter ones. Because local licensing has a wide range of interpretation of appropriate playground design, obtaining approval of the design concept early is important.

Play areas should be accessible to children with disabilities. This means that children with disabilities should be able to reach the play equipment to benefit from the interaction that occurs there.

6.6 Play Yards for Different Age Groups

The Consumer Product Safety Commission's *Handbook for Public Playground Safety* includes a complete listing of appropriate standards and hazards. Designers should refer to this reference.

6.6.1 Infant Outdoor Play Areas

Play areas for infants require special design considerations. Best practice indicates that separate spaces for infants should be near toddler play areas, providing visual and audible connections and limited physical contact. Ideally, infant play areas should be exposed to the natural environment, though shielded from the extremes of wind and sun.

Infant play area surfaces should consist of soft, resilient materials that protect crawling children and provide a comfortable surface on which they can sit. Soft surfaces should have different textures and colors that are not loud, but denote changes in activities and challenges.

Developmentally appropriate challenges should be situated within bounded areas, or behind slight barriers requiring mastery before the child may venture into the next area. These challenges could take the form of crawling spaces with slight inclines, low, easy- to-cross barriers or berms, pull-up bars, and low platforms and slides. There should be a surface hard enough to allow the use of wheeled and push toys.

6.6.2 Toddler Outdoor Play Areas

Toddlers should have play areas for walking, jumping, climbing, running, drawing, painting, block play, group play, sorting, and exploring. The play environment should allow for a wide range of movement and stimulate the senses through the novelty and variety of challenges. Simple, versatile climbing equipment is more appropriate for toddlers than scaled-down versions of older children's play structures. Toddlers crave and enjoy semienclosed spaces, such as small playhouses or climb-through tunnels. They also enjoy small slides. Toddlers seek out experiences with motion or movement.

Best practice indicates that all play structures in toddler areas must be surrounded by a resilient surface. A variety of surfaces and materials should be provided including sand and dirt, pavement, and open grassy areas where toddlers can use an abundance of play objects. When combined with toys, sand becomes a major resource for toddler play. There also should be a hard surface area and paths to support play with toys on wheels. (Refer to Section 6.7).

6.6.3 Pre-School Outdoor Play Areas

Play areas for pre-school children should support dramatic, constructive, and creative play, active and quiet play, sand and water play, offering opportunities to explore nature. Pre-school children regularly interact, socialize, discuss, and negotiate. At this age, they begin to engage in socio-dramatic play. Running, jumping, climbing, and swinging are important and are often pursued in a make-believe setting.

Best practice indicates that a large, open-ended play structure offering many activities and designed to lend itself to dramatic play should be provided. There should be elements such as playhouses, stages, and props that encourage dramatic play. These elements should be positioned within the play area to allow the dramatic play to spill out and flow into other spaces.

Pathways for wheeled toys also provide circulation and allow the play experience to flow through the play areas. Facilities for play with sand and water should be included and placed adjacent to one another allowing these activities to intermingle. Materials for creative play, such as musical devices, painting materials, chalkboards, construction materials, and blocks, should be included. If there is a covered porch, it may be ideal for painting and drawing.

Generally, for best large muscle activity in a group care setting, the children should be moving, not the equipment. Though tire swings are appropriate, standard swings are too problematic to warrant their inclusion.

6.7 Specific Site Technical Criteria

6.7.1 Fences and Enclosures

Best practice indicates that:

- Play yards must be enclosed by fences to define them, to allow ease of supervision of children, and to protect children from unauthorized individuals or stray animals. The design of the fence should be more than simply utilitarian. In general, GSA discourages chain link fence, other than dark vinyl-coated types. Exposed galvanized wire, which has a highly institutional appearance, is not appropriate. Fences should not have sharp exposed connections accessible to children.

Other guidelines:

- Bollards, raised planters, or other devices to keep automobiles from veering into the play yard should be provided.
- Whether the fence should be transparent or opaque and how high it should be depend on the location and environmental conditions.
- It is important that the spaces between fence pickets are between 3.4 inches and 9 inches wide to prevent children's heads from being entrapped. Openings less than 3.4 inches should be large enough to prevent finger or hand entrapment, but not so small that fingers and hands cannot penetrate the opening. There should not be any openings between 0.3 inch and 1 inch. Refer to the most recent edition of the *Handbook for Public Playground Safety* by the CPSC.
- A 6-ft.-high fence should enclose the play yard when views into the play yard are allowed. As an alternative, a shorter fence with plantings or landscape features planted or positioned in such a way that an adult would not be able to reach over the fence may be acceptable.
- When the play yard is adjacent to hazards, near busy roadways, or in a high-security- risk neighborhood, an 8-ft.-high fence should enclose it. Views from the play yard should be screened either by the fence itself or with plants or other suitable devices. Bollards, raised planters, or other devices should be used to protect play yards next to driveways or roads where cars could swerve into the area.
- The fence bottom should be a maximum of 3 in. above the ground. Exposed fence bottoms should have a smooth finish.
- Wood fences should be smooth finished and splinter-free and, if treated for exterior use, should be guaranteed to be non-toxic.
- Gates should be self-closing and latching. Children's fingers should be protected from pinching or crushing on gate hinge spaces. Each play yard should have a vehicle gate to allow service.
- Fences may be used for protection from the elements and to control sunlight and wind exposure.
- Fences should be safe, with smooth caps and no finials or sharp picket tops.
- Fences should be designed to discourage climbing. However, they must be able to withstand code-specified force applied horizontally.
- Fence construction should not use horizontal rails, except for the cap and base, to prevent climbing.
- Fastening devices used for fence construction should not project outward where they could injure children.

6.7.2 Plant Materials

Best practice indicates that all plant materials must be non-toxic. See Appendix D for a listing of common toxic and non-toxic plant material. In addition, local agricultural extension services can provide information on toxic or poisonous plants in the local area. Plant hazards include berries, thorns, and plants with toxic leaves, stems, roots, or flowers.

GSA advises:

- Plant materials should be used to bring natural elements to the play yard environment. (Plants that readily attract bees may be excluded).
- The atmosphere of the center can be enlivened by the color, texture, sound, and motion of plant materials.
- Children's observation of plant growth is beneficial.
- Plant materials that display seasonal changes are desirable. Visual barriers, screens, and shade and wind protection can be created using plant materials in preference to, or in conjunction with, man-made structures.
- Plant materials should be used to define interesting play areas.
- Trees with low-hanging limbs should be avoided because children could use them to climb to unsafe heights or scale fences.

6.7.3 Dimensions and Clearances

Best practice indicates:

- Main entrance pathways should be 6 to 8 ft. wide. All pathways must provide adequate clearances as prescribed by the UFAS and ADA standards. Pathway slopes should be no greater than 1:20 unless they are provided with a handrail. (More than 1:20 is considered a ramp.) Cross slopes should be limited to 1:50.
- Platforms, stairs, handrails on stairs, guardrails, and protective barriers on platforms should comply with requirements in the latest edition of the *Handbook for Public Playground Safety* by the CPSC. The height of platforms and the age group using the platform will determine when a guardrail or protective barrier is required. Guardrails may be used in platforms at lower heights, while protective barriers should be provided on higher platforms.
- Handrails should be provided to accommodate the intended age group on all stairs, including adults. For children, heights will range between 20 and 36 inches above the leading edge of the tread. In certain instances it may be necessary to have two railings mounted at differing heights.
- Guardrails should be provided for infants and toddlers on all platforms higher than 12 inches above adjacent surfaces. Guardrails must be provided for pre-school-age children on all platforms greater than 20 inches above adjacent surfaces. The top of the guardrail must be 30 inches above the platform. The guardrail should not have openings between 3.4 and 9 inches to avoid the possibility of head entrapment. To prevent finger entrapment, there must be no openings in the fence between 0.3 and 1 inch wide.
- Protective barriers should be provided for all children on all platforms more than 30 inches above adjacent surfaces. The protective barrier should be 30 inches above the platform, with no openings larger than 3 inches and no horizontal footholds.
- Maximum platform height for infants is 18 inches above the adjacent floor level.

- Maximum platform height for toddlers is 36 inches above the adjacent floor level.
- Maximum platform height for pre-school children is 4.5 ft. above the adjacent floor level.
- Pathways under trees and constructed elements must have at least 6.7 ft. of headroom.
- There must be a fall zone with a resilient surface under all climbing and moving fixed play equipment from which children could fall as specified in the current CPSC and local licensing criteria. Typically a 6-ft. radius is called for. Criteria for resilient surfaces are discussed below in Section 6.7.6.
- There should be a 6-ft. radius clear approach zone to all play equipment, not including the fall zone. No tricycle path should run through a fall zone.

6.7.4 Shading

At least half of the play yard should be exposed to sunlight during the morning and afternoon when it will be used. The degree and orientation of shade depend on local climatic conditions. Shade areas, including porches, gazebos, and other structures, should provide a minimum shaded area of 6 ft. in any direction. Shading structures and materials that may be used include trees, exterior screened rooms, park shelters and structures, awnings, and umbrellas.

6.7.5 Play Yard Surfaces

Surfaces for play yards, based on their physical properties, can be categorized into three general types: resilient, hard, and grass/turf. GSA advises using a variety of ground surface textures in a playground.

6.7.6 Resilient Surfaces

Surfacing is critical and should be one of the most important decisions.

Resilient surfaces reduce the impact from falls and should be used in specific equipment areas referred to as "fall zones." Refer to ASTM F-355, *Shock Absorbing Properties of Playing Surface Systems and Materials* and the most recent publication of the CPSC's *Handbook for Public Playground Safety*, for specific requirements concerning these resilient surfaces. Examples of approved resilient surface materials are pre-engineered wood chips, not simply wood mulch, pre-formed rubber matting, and poured-in-place rubberized surfaces. Water should drain through these surfaces.

The fall-absorbing abilities of each surface depends upon the installed thickness and the method or system of installation. However, whichever type is used, GSA advises designers to follow the CPSC recommendations.

These surfaces vary dramatically in cost. The least expensive are the loose-fill variety, which typically require a much higher level of maintenance to ensure that the required depth is maintained. This problem should be discussed during the design process. The designer may recommend the more expensive rubberized solutions for ease of maintenance, but should receive written assurances that its impact-absorptive properties are not lessened by exposure to sunlight. Adequate drainage should be provided under any resilient material, including wood chips. A combination of materials, such as grass, resilient surface, and pre-engineered wood chips, incorporates the advantages of each material and renders a more natural, less institutional appearance than any one surface alone.

GSA advises that the designer should also note the following:

- Organic materials, such as wood chips, bark chips, and processed wood fibers, have good impact-absorbing potential but require proper maintenance to ensure proper, consistent depth. Children may try to ingest them.
- Tire chips have good resiliency and are relatively inexpensive, but can leave black marks on shoes and clothing. Children may try to ingest these and they are not recommended.
- Manufactured resilient mats should retain slip resistance when wet.
- Artificial turf alone does not have the resiliency for fall zones and can be abrasive and convey an unattractive, unnatural impression. This material is not recommended.
- The surface must be wheelchair accesible.

6.7.7 Hard Surfaces

Hard surfaces should be provided in areas used for wheeled riding, in game court areas, and on some all-weather pathways, such as those for wheelchair access. Examples of hard surface materials are concrete, asphalt, stone, or masonry pavers. The durability of each material will vary based on factors such as the method of installation and the thickness of the surface material.

The severity of weather affects all paving surfaces, but cast-in-place concrete over a well compacted sub-grade is the most durable, maintenance-free paving material for hard surface areas. It should be finished to be non-slip. Asphalt paving is an acceptable alternative in vehicular areas, but it degrades more quickly than concrete. Masonry pavers make a durable surface and have numerous options for patterns.

GSA advises considering the following:

- The use of pavers may introduce joints and textures in the paving surface. They can become uneven over time, if they are not laid over a concrete base. Unevenness may present a tripping hazard. Depending on the method of installation, the cost varies. Asphalt usually is the least expensive, and stone or masonry pavers is the most expensive. It is possible to use a variety of surface configurations and materials to increase the impression of "naturalness" in the play yard. Specifications and supervision to ensure excellent compaction will affect the serviceability of the surface material.
- Materials for pathways should allow use during inclement weather. Acceptable materials include concrete, asphalt, stone or masonry pavers, rubberized surfaces, rubber matting, or wood chips. The edge of pathways should not create trip hazards, and they may need to be tapered for transitions. Any surface should allow access by wheelchairs.
- The main entrance pathway should be paved. Gravel and loose stone are not recommended for walkway surfaces, since children may put them in their mouths or throw them. Smooth surfaces provided for wheeled toys should not have joints wider than 1/2 inch because they can cause toys to tip.

6.7.8 Grass/Turf Surfaces

Grass/turf is desirable for open play areas but is not appropriate in fall zones. This surface is seasonal, and is not suitable during periods of rainfall or snow. Exposure to grass/turf allows children to experience natural materials and provides a pleasant texture to play on, but the surface requires constant maintenance and may need an irrigation system.

Interior Space Design

This chapter provides concepts and criteria for the design of the interior spaces in a center used in the care of children. Spaces include entry and circulation, staff, classroom, common, and service spaces.

Head Start centers vary in size and the number of people using the centers. Interior design should reflect the needs of specific centers.

7.1 General Information

Spaces within a center can be separated into three major types: a) the classroom and common use areas used by children; b) the staff areas used by teachers, coordinators, and parents; and c) the service areas used by people servicing the center. The entry to the center and main circulation pathways may unify these areas. Following are descriptions for each space type. See Chapter 9 for finish recommendations.

7.1.1 Entry and Circulation

The entry may include the transition space, vestibule, and reception area where parents, teachers, children, and visitors enter. The main circulation provides pathways between functional spaces.

7.1.2 Staff Areas

Staff areas may include the director's office, other staff offices, assistant or secretary's work space, staff offices, a lounge and work area, staff toilet, parent/teacher conference area, a parent's room, a central resource storage, and a family resource room.

7.1.3 Classrooms

Classrooms for infants, toddlers, and pre-school children should be designed specifically for the group(s) that will use them. Best practice indicates that they should have a variety of spaces to support children's care and developmentally appropriate activities. Architecturally defined spaces within classrooms may include the entrance, cubby storage, classroom and teacher storage, diapering station and storage, toileting and hand washing, sleeping, nursing, and food preparation. The classroom may have an art sink, raised areas, and loft areas, and open, architecturally unrestricted areas.

7.1.4 Common Areas

The center may have additional space, typically in centrally located areas, for use by children, teachers, and parents. This is desirable because one beneficial aspect of a Head Start center is the strong sense of community among those who use it.

The center may also include a multipurpose space. This space may be used as a meeting or gathering area and as a large-muscle-activity area. Best practice indicates that if adequate outdoor play yard space is not available, or if the climate is not conducive to outdoor play during significant portions of the year, an indoor large-muscle-activity area should be provided.

An isolation sick bay, where a child can wait until taken home by a parent, is best associated with the center director's office, or another staff office to provide uninterrupted supervision. A separate area may frighten the child and should be avoided unless mandated by local licensing requirements. See chapter 10 for ventilation requirements.

7.1.5 Service Spaces

The center requires space for food, laundry, janitorial, and other services, plus a service dock or entrance.

7.1.6 Entrance and Circulation

These spaces should allow for safe and convenient arrival and departure. The character of the main entry is important for establishing a friendly impression for the children and creating a non-threatening transition from the parent's care to that of the center.

GSA advises that certain features will help to promote this impression:

1. Glazing the entrance door with safety glass, affording full visibility for children and adults.
2. Allowing children to see other children in classrooms from the entry to reduce anxiety.
3. Constructing a reception desk that allows children to see the adult behind it. (GSA advises that the need for a reception desk should be questioned during design concept development, as this feature in existing centers is often underutilized.) The main entrance should be close to an adult toilet room to facilitate use by parents.

Other points of entry for the facility include service entry access to the play yards and the classrooms. The main entry should include an exterior transition area, where a covered bench for good-byes, "shoe-tying," and other child/parent interactions can occur comfortably. The entry should also include a vestibule for energy conservation, conforming to ADA dimension requirements, and a reception area. Secondary entries should have transition areas but do not require thermal vestibules. Porches or mud-rooms, depending on climatic conditions, can serve this purpose in individual geographic locations. In spaces that are difficult to monitor, fire egress doors should be alarmed.

7.1.7 Exterior Transition Spaces

GSA suggests that all exterior entries used by children have transition spaces consisting of a bench and a covered area of not less than 22.5 square feet. The term covered means with a roof, canopy, or trellis. Transition spaces are important in creating a comfortable environment and integrating the exterior and the interior. These spaces allow children to adjust to the changes between interior and exterior light levels and temperatures. The transition spaces also may serve as mudrooms or may provide an intimate area for children outdoors.

Overhanging elements extending from the building, such as porches, verandahs, canopies, or arcades, can create successful transition spaces and can be used for program areas in some climates.

7.1.8 Vestibule

It is wise to provide views of the short-term-parking area from the entry vestibule, and to design windows with low sills so children can look out of and into the center. This vestibule should have two sets of doors to provide energy conservation, and the doors should permit use by those in wheelchairs, as required by the ADA.

The entrance should offer emergency egress hardware at adult height and provide a flush-mounted walk-off mat to prevent water and soil from being tracked into the center. The entrance may need security devices for control. This equipment should be non-intrusive and have a non-threatening appearance. Refer to the security section in Chapter 10 for more information on suggestions for the security system.

In areas with snow and ice, a generous roof overhang or canopy will diminish the risk of falls. With a minimum overhang at the exit door, it will open for fire purposes, even during periods of heavy snow and ice.

7.1.9 Reception

A reception area should be included immediately inside the entry. It hould be warm, bright, and welcoming, and as comfortable as possible. The reception area connects the entrance to the main circulation pathways of the center, and parents escort children to the classroom from this location.

A reception desk at desk height may be provided in large centers. If so provided, it may be designed to serve several functions. For instance, it may incorporate sign-in facilities or parent/teacher mailboxes, or both. A counter, which is typically simpler and less expensive than a reception desk, may also serve these functions. If space permits, a small table or desk could be appropriate. In all events, a child should be able to see the adult behind the desk. Furnishings in the reception area may include a sofa, chair, end table, and coffee table.

The design team should select durable finishes that have an informal, comfortable appearance and establish a warm, inviting feeling through use of color, soft seating, plants, and art work. Recommended finishes include a carpeted floor and a washable and durable wall finish. Cut-pile carpet has proven less durable than looped pile. Navaho or Oriental-style patterned rugs may be associated with a home environment. Like all rugs in the center, these rugs should have non-slip backing.

7.1.10 Main Circulation

There are two types of circulation paths in a center: the main circulation path connecting the various classrooms and major spaces of the center, and the internal circulation paths within those spaces. Circulation within classrooms will be discussed in the classroom section of this chapter.

The main circulation path serves as a community space as well as a pathway. The circulation space should not be utilitarian in character. Instead, it should be conceived as a street or a gallery with stopping and cueing areas along the way. There should be opportunities for important social interaction along the circulation path. It is a space to meet other children and parents, a vantage point to see into classrooms, an exhibition space for the work of children, or for art prints and quotations to inspire and educate adults.

The designer should strive to limit the floor space devoted to pure building circulation. GSA recommends that, if possible, the designer should try to avoid the institutional appearance typically created by long, undeviating, double-loaded corridors with doors to rooms on both sides.

When it is not feasible to vary the layout of the circulation corridor, GSA advises that design strategies to downplay such an impression include:

- Lighting: The designer can introduce artificial lighting. For instance, instead of the dead-center placement of fluorescent lights in corridor ceilings, strategically placed wall washing lights can be added, or natural light can be provided through skylights. Putting a window, glazed door, or skylight at the end of a corridor is also advisable.
- Floor Pattern: The use of pattern can create a strong sense of place for children, and can be used by a skillful designer to diminish the impression of long, double-loaded corridors. For instance, large pattern repeats are often effective for de-emphasizing the tunnel appearance of double-loaded corridors. Likewise, patterns that are not symmetrically arranged or that emphasize functional areas, such as entrances to classrooms, are effective means to achieve the same end.
- Color: The designer should explore the use of color to visually alter the dimensions of otherwise institutional looking double-loaded corridors. Care should be taken to avoid an overstimulating color scheme.

Children gain a sense of orientation when they can see the entrance to their classrooms and recognize landmarks such as displays, common areas, and other design features. Teachers and children require clear views between the classroom and circulation areas at their respective viewing levels. Some centers use color and floor patterns to help guide children to their rooms.

The main circulation path should be designed to serve also as a primary means of emergency egress. Through judicious arrangement, the designer should strive to reduce the area devoted to a purely utilitarian circulation. No more than 30 percent of the Occupiable Floor Area (OFA) within a facility should be used for primary circulation and service areas, unless the center location is irregular. The Occupiable Floor Area (OFA) allowance includes circulation within the classroom.

Outside corners in the circulation pathways should be eliminated to the extent possible. Angled or curved corners can facilitate cart and stroller traffic and may decrease the possibility of injury.

Recommended finishes for major circulation paths include impervious surfaces at the floor and at wainscot height, paint above wainscot height, and safety glass in windows along the corridor.

7.1.11 Staff Spaces

Staff areas may include:

- The director's office and other staff offices
- The assistant or secretary's work space
- A parent/teacher conference area or resource center
- A staff lounge and work area
- A staff/parent toilet
- Central resource storage

The main circulation area should access the spaces used by the staff, particularly teachers.

7.1.12 Staff Offices

The director will usually perform deskwork and interviews in his or her office. During the day, the director may use this space to meet with parents, staff members, children, or other visitors, and to conduct parent interviews. Larger centers may have an assistant or secretary who works closely with and shares duties with the director, and space for this staff member should be located near the director's office. Other Head Start staff offices may include offices for family service workers, health workers, education coordinators, and others depending on the services a program offers.

Place staff offices in a quiet space. The director's office might be located next to the reception area and accessible to visitors. To supervise properly, that office must have excellent views of the main entry, the reception area, and as many classrooms as possible.

Staff offices should be comfortable, with carpeted floors and washable wall surfaces. They should have adequate lighting and acoustical separation of at least 45 STC from the children's active areas.

GSA advises that furnishings should include a desk and chair, two guest chairs, filing cabinets, a coat rack, shelving for books and resources, and lockable storage cabinets or a closet for personal belongings, and first aid items.

Staff offices require a telephone and may have security video monitors. There should be appropriate power to accommodate computers, printers, and a fax machine. A copier and video equipment also may be stored here, if not placed in a workroom or a resource storage area.

7.1.13 Parent/Policy Group/Teacher Rooms

Head Start requires that parents and policy groups participate in carrying through the Head Start program. Therefore, it is a good practice to have a room where parents and policy groups can gather, conduct meetings, and socialize. Parent/teacher conferences, parent and policy group gatherings, and meetings between staff members can be held in this room. This space should be in a quiet, private area.

The space should be comfortable and pleasant. Recommended furnishings include a conference table. Seating will depend on the size of the center and its associated staff and parents. The room should contain shelving for books, and a bulletin board. Lighting should be dimmable so video materials may be viewed.

7.1.14 Staff Lounge or Work Room

The staff may use this space not only as a retreat but also as a workroom. They eat, relax, and converse here, plan curriculum, and prepare classroom materials. Ideally, the lounge may contain an adult toilet. This space requires visual and acoustical separation from children's areas but should be easily accessible to the staff. Parent and policy group gatherings may also take place in this space if it is large enough.

The lounge should be comfortable, pleasant, and soothing. It should contain a counter with a microwave, a sink with running water, a refrigerator (either counter or full depending on the size of the center and the number of staff members), and cabinets. The flooring at the counter area should be impervious. All base cabinets should have childproof hardware. Recommended furnishings include tables and chairs, a small sofa, and storage, some of which have locks.

The workroom should have adequate space and power connections for telephone, computer, video equipment, and laminating and copy machines. The machines should be isolated acoustically, perhaps in an alcove, for better control of noise. There should also be space at the counter for other equipment, such as a butcher paper holder and an art waxer (a piece of equipment that allows children's art to be hung without tape or pins).

7.1.15 Staff Toilet

GSA recommends that a center should provide at least one adult toilet, although two, at opposite ends of the center may be necessary depending on the center and number of adults (see state or local requirements). Adult toilets in the center must meet all UFAS and ADA code and local licensing requirements. Toilets should be accessible from the reception area and staff lounge. Recommended finishes include impervious flooring, such as linoleum, and painted walls above an impervious wainscot.

One adult toilet should be in or near the infant and young toddler classroom areas. This will be discussed later in this chapter in the section on classrooms. Adult toilets should be provided with toilet seat cover dispensers.

7.1.16 Central Resource Storage

The director and teachers may use a centrally located resource room for bulk storage of curriculum materials and supplies and for storage of resource tapes, books, and audio/video equipment. This room should not be seen as a substitute for the small-scale storage necessary within the classroom. The base of securely anchored cabinets must be no lower than 4.5 ft. above the finished floor.

The storage area should have adequate lighting, open shelving, lockable, closed-door storage, and filing cabinets. If space permits, a work counter and a counter-height stool may be provided.

7.2 General Concepts for Classroom Design

Children spend most of their day in the classroom. It should afford opportunities for developmentally appropriate activities. Parents typically drop off and pick up children at the classroom. Other adults may visit during the day or help as volunteers.

7.2.1 Classroom Areas

The classroom design includes functional areas defined by furniture arrangements and constructed elements that vary depending on the age group. To maximize the space devoted to these important functions, the circulation between entrance and exits should be as direct as possible. It is appropriate to position tables and work surfaces adjacent to circulation areas, while retaining corners and floor areas for more protected and nurturing activities. GSA advises that the areas within the classroom should be designed or arranged to fit four or five children and one adult, although there should also be a group gathering area. Finally, areas located in alcoves can allow children to be by themselves or in small groups.

Major classroom elements such as plumbing connections, risers, or cabinets secured in place for safety reasons are fixed, but children and their teachers may modify the remaining space to create areas for their activities. The classroom should provide flexibility for these activities.

Children require opportunities for diverse activities in the classroom. Lofts offer an opportunity for exploration. Where low shelves and partitions are used to separate use areas, they should be secured to prevent tipping.

The arrangement of storage cubbies for children's personal items will be altered less frequently. Manufactured cubbies anchored to partitions or low walls have been found to be more cost-effective than built-in types. The designer should ensure that the space could accommodate the manufactured cubbies. To prevent a proliferation of children's personal items in and around cubbies that would destroy the order and function of the classroom, cubbies should be arranged to form a cloakroom, or entrance alcove, with openings facing away from the main classroom.

GSA recommends that a well-equipped classroom for particular age groups should have the following areas:

Infant Classroom

- Entrance
- Cubby storage
- Classroom and teacher storage
- Adult toilet within 33.75 ft. of entry
- Diapering station and storage, including a sink
- Sleeping/crib area
- Nursing area
- Eating/table area
- Food preparation
- Open activity and crawling area for play and development
- A second sink

Toddler Classroom

- Entrance
- Cubby storage
- Classroom and teacher storage
- Adult toilet within 33.75 ft. of entry
- Diapering station and storage, including a sink
- Children's toilets and sinks
- Eating/table area
- Food preparation
- Open activity area for play and development
- Area with level change (three risers minimum)
- Cot storage
- A second sink

Pre-School Classroom

- Entrance
- Cubby storage
- For a 3-year-old classroom, a small diaper changing area and a sink
- Classroom and teacher storage
- Children's toilets and sinks (One sink at toilet exit is preferable to avoid congestion.)
- Eating/table area
- Art sink with appropriate flooring
- Water play area with appropriate flooring
- Drinking fountain
- Loft area
- Area with level change (three risers minimum)
- Open, unrestricted activity area
- Block area (64 square ft. minimum) located away from main circulation
- Cot storage

The zoning of classrooms is critical to the success of the center. The designer should consult at length with users, if possible. GSA advises that general design principles include:

- Discreet functional areas in the design of the classroom, created primarily with furniture.
- Noisy and active areas away from quiet ones.
- Circulation around equipment, such as slides, away from activity centers.
- Block play areas where blocks can remain in position for more than a day protected from main circulation paths and active play.
- Rectilinear tables arranged with 3.25-ft. of clear space between them.

7.2.2 Classroom Location

GSA recommends that classrooms be located along the exterior perimeter of the building to provide maximum access to natural light. When this is not possible, the classrooms should borrow natural light from areas along an exterior wall that has windows. Classrooms require direct access to the central cir-

culation system and as direct access as possible to the play yards. Classrooms should also be close to common use spaces. Infants and young toddlers should have classrooms separate from other age groups. In small centers, the design should allow for construction of additional classrooms, if future expansion is likely.

7.2.3 Classroom Size

Classrooms should accommodate the number of children in each age group. Refer to Head Start Program Performance Standards, Section 1304.53(a)(5), cited in Appendix B and local licensing requirements when designing the space. The most stringent standards should apply.

7.2.4 Separation of Spaces

Separation can be achieved by using solid and glazed partitions, either partial or full height, doors, casework, cabinets, panels, or railings. GSA advises that three types of separation should be considered: accoustical, visual, and physical.

The following aspects of separation should be considered when designing the classroom spaces.

- Separate classrooms: Groups of children should be physically separated from each other. GSA advises that sound transmission between classrooms should be controlled, using partitions that are not less than 34 STC, although complete acoustical separation is not necessary. High noise levels from adjoining classroom spaces can disrupt class activities and raise tension levels. Some noise transmission is desirable to allow children to be aware of other groups. Children should be able to see views through windows between classrooms, and the design should allow at least one view window at children's level between classrooms. At least one adult view window is also highly desirable.
- Partial enclosure: Partial-height enclosures should be used for fixed elements in the following areas: food preparation; children's toilet and hand washing; a sleeping area for infants; and the rear of cubbies. Food preparation and toileting/diapering areas must be clearly separated and have separate sinks to diminish the chance that a caregiver could inadvertently go directly from diapering to food preparation without hand washing. Partitions with vision panels can be effective for separating these areas while allowing supervision.
- Complete enclosure: Complete enclosures should be used for teacher storage within the classrooms and for any adult toilets.

7.3 Scale

If the classroom is to be nurturing, the designer must appreciate the need for matching the scale to the size of the children. (Refer to Table 3.1, Physical Dimensions of Children.) It is important to adjust the perceived scale of the classroom. While areas of high ceilings may be desirable in spaces which the child perceives as too high to have a residential character (85 percent of the room over 11 ft. high), perceived height should be modulated.

For instance, consider using pendant lighting or ceiling fans hung no lower than 7.5 ft. above the occupied floor area below. Pendant task lighting over fixed elements may hang as low as 5.5 ft., as long as headroom is not required for passage. Fans can improve air flow and energy efficiency, and rotation can be reversed, depending upon the season. Aside from the obvious mechanical and lighting enhancements that these strategies provide, they also help tailor spaces to children's spatial perceptions. In

addition, it is wise to provide the opportunity to hang banners and create trellis ceilings over activity areas, though it is important to ensure that they will not impede the function of the sprinkler system.

Window sills and counters used by children should be the appropriate height for the children using the space. However, it is important to leave 1.5 ft. beneath widow sills measured to the classroom finish floor, so that furniture and equipment can be placed easily along exterior walls. Storefront-style windows to the finished floor are not desirable.

Furnishings and equipment for children, such as toilets, hand washing sinks, and countertops, should be child-scaled. Countertop height and reach depth should allow children with the opportunities to use them unassisted.

Consideration should also be given to the adults using the space. Center design should be adult-friendly as well as child-friendly. As a result, not all elements should be reduced in scale. Door locks, light switches, and other functional elements should retain adult scale and be mounted at standard heights. Food preparation, storage, service, and other areas of the center used by adults should remain at standard scale. Furnishings for adults, such as sofas used for comforting and reading to infants and young children, should be adult scale. Some items may have a dual function, serving both children and adults.

In placing electrical/telecommunication or security equipment, it is important to ensure that cords and wires are placed where children cannot reach them. Their placement should not pose a strangulation threat.

7.4 Architectural Form

The architectural form of the classroom should be an appropriate setting for a child, conveying a definite sense of place while preserving optimal flexibility. GSA advises that the great majority of the space should be free of constructed elements. In this way, furniture arrangement can create the functional area.

GSA offers the following advice:

- Vary ceiling heights. Varying ceiling heights can define areas, disperse light, and create interest. Higher ceiling heights encourage higher activity levels, while lower ceilings support quiet activities. The probability of higher construction costs must be considered in determining the extent of variation.
- Vary floor levels. Consider varying floor levels by creating riser lofts and low platforms. Sunken areas are also effective. The designer should be aware that permanent, constructed level changes might restrict flexibility and use valuable open floor space. When used effectively, however, level changes can add interest and create intimate areas for children. Terraces and platforms provide areas for dramatic play activities and also can double as seating areas. Lofts that accommodate three to five children can offer the possibility for large-muscle activities, dramatic play, or space apart for quiet play. The designer should keep in mind that small level changes could be a tripping hazard.
- Vary wall configurations. Consider modulating partitions to create interest, soften a space, offer a more nurturing impression, or create special spaces. Avoid 90-degree or acute outside corners that pose hazards to children who may run into them. Curved or obtuse angled partitions should be considered instead. The designer should keep in mind that visibility of all areas within the classroom is a key factor, and should avoid creating blind areas that would make teacher supervision difficult.

- Locate plumbing fixtures in one area. Elements with plumbing connections, such as toilet areas and art sinks, should be grouped together for more efficient construction. Food preparation should be separated from diapering and toilet areas, but can be placed on the opposite side of partitions with plumbing.
- Provide ample display space. Provide a significant amount of classroom wall display area at children's height for displaying artwork and projects. Devices for displaying artwork should be included. They should not involve tacks, because they are dangerous around young children, or tape, because it can damage the finish of partitions. Displaying children's work is an indication that their art and development are valued.
- Preserve inside corners. Corners within the classroom offer opportunities to create differentiated areas. Retain inside corners, and use features such as low partitions behind cubbies to create nurturing corner spaces.
- Provide natural light. Provide natural light, preferably from at least two directions, through windows, clerestories, atria, and skylights. Natural light is essential to children. Space without access to natural light should be considered inappropriate for young children. Each orientation has light that has a special quality. GSA advises maximizing the amount of natural light and taking advantage of as many orientations as possible to achieve variety in the type of lighting. In cold climates, large expanses of glass on the north side of the center can create drafts and uncomfortable temperature ranges. In southern climates, large expanses of glass on the south side can cause dramatic heat gain. Shading devices such as overhangs, louvers, trellises, and trees should be considered for window areas that receive direct sunlight. Low countertops or shelving may be provided at some windows for growing plants and other nature-oriented activities. If the trim for the countertops and windows have warm hues, the classrooms will have a sense of warmth.
- Provide views for children. Views allow children to be aware of their surroundings and the world beyond the center. Views should be provided to the outside, particularly to the play yards. It is also advisable to offer views to atria and planters, common spaces, other classrooms, and circulating pathways. Windows should be located at sills low enough for children to see outside and should allow small-scaled furniture to be placed beneath them.
- Provide visibility to the staff. Teachers must have an unrestricted view of the children at all times, both within the classroom and in the play yards. Views should be provided between classrooms and other spaces in the center. Any interior doors, with the exception of adult toilet areas, must have visibility panels. Dutch doors should be secured when in the open position. Partial walls and interior glazing allow visual supervision and allow children to be aware of others in the center. Partitioning at the sides of toileting areas should be no higher than 3.5 ft. to allow supervision of preschool children. There should be gates with view panels in infant and toddler classrooms to prevent children from entering kitchen and diaper areas.
- Zone classroom space to separate active and quiet activities. Use variations in ceiling height, floor height, wall configuration, light levels, finishes, and open areas to modulate perceived activity levels within the different areas of the classroom. Zone high-activity areas, such as the entrance, eating/table areas, and the exit to the play yard, away from areas intended for sleeping and quiet activities. Likewise, messy and clean areas should be zoned to provide appropriate separation.

7.5 Component Areas of Classrooms

7.5.1 Classroom Entrance Areas

Each classroom's entrance should meet all emergency egress requirements. A second classroom entrance, either to the main circulation path or to the play yards, should be considered, and it may be required for egress, depending on center configuration. GSA suggests placing the entrance along a wall, leaving valuable corners available for activity areas. Entrances should allow views from the main circulation area to classrooms. There should be a sign-in counter near the classroom door at approximately 2.7 ft. above the finished floor with storage below.

7.5.2 Cubby Storage Area

Upon arriving at the classroom entrance, parents put infants' things in cubbies and children typically store their outdoor clothing and personal belongings. They may need their outdoor clothing at times during the day to go to the play yard or on excursions and to go home. Parents may linger in the cubby alcove, spending time with their children or with teachers or other parents. The design of the cubby area should consider these activities so bottlenecks do not occur at the classroom entrance. It is wise to arrange cubbies in a cloakroom instead of in valuable classroom space.

GSA suggests that all the cubby storage areas include these features:

- Cubbies appropriate for use to store infants' belongings, with one for each infant.
- Open-front cubbies, scaled to child size, one for each child in the classroom, and secured to the floor and wall to prevent tipping accidents.
- A 3 ft. clear area in front of the cubbies for access.
- Seating, such as a bench, which may be integral with the cubby, for either adult or child use.
- A parent bulletin board and mail box located at the cubby area or in the reception area.

The size and type of cubby storage may vary according to the age group of the children. It may be convenient to include a shelf for child safety seats, if space allows. If the cubbies are purchased, the designer should take care to verify that the manufacturer's dimensions of cubbies match those suggested for the classroom space. A classroom design should accommodate the purchased cubbies.

7.5.3 Infant and Young Toddler Cubbies

Infants and young toddlers may need storage for diaper bags, clothing, and supplies. These purchased cubbies are typically about 1 ft. wide, 1 ft. deep, and 1.5 ft. high. The bench in the infant area should be at about 1.2 ft. above floor level, so parents can sit comfortably while removing or putting on a baby's outdoor clothing.

Parents may wish to leave collapsible strollers or other child-carrying equipment at the center during the day. Rods for this purpose should be provided in this storage area or near the reception area. Provide 9 to 12 inches of rod length for every five children, and install rods approximately 4.5 to 5 ft. above the floor. If a double storage rod is needed, install the top rod about 7 ft. above the floor and the bottom rod about 3.5 ft. above the floor. Provide a retaining rail to keep the lower end of the strollers in place.

7.5.4 Older Toddler and Pre-School Cubbies

Older toddlers and pre-school children need to store bulkier outdoor clothing in their cubbies. Storage is required for satchels or backpacks. Satchels and backpacks may be stored on hooks. Cubbies for this classroom should be a minimum of 1 ft. wide, 1 ft deep, and 3 to 4 ft. high. Two hooks are needed in each compartment for hanging garments, and a shelf should be included for boxes, boots, or extra shoes. The bench in this area should be about 10 inches high for children to sit comfortably while donning outdoor clothing and boots. The area should also contain a shelf for art or other work to be taken home.

7.5.5 Open Activity Area

Each classroom should have an open, unrestricted activity area, clear of constructed elements. Teachers, along with the children, are ultimately the architects of this space. They can alter this flexible area in an ever-changing response to their needs and activities. This can be accomplished through the use of elements such as curriculum equipment and materials, movable panels and demountable walls, fabrics, and furniture such as seating or shelving, and display racks. The required space allotment for this area is found in Chapter 5. Requirements for activities occurring within this space will vary according to the age of the children. Play activities may involve:

- Discovery, including sand and water play
- Large-muscle activity, movement
- Art
- Music
- Socio-dramatic make-believe and role-playing
- Reading/listening/storytelling
- Manipulatives, including small puzzles and finger toys
- Block building
- Woodworking
- Science, including nature study
- Math

It is wise to locate the open activity area within the classroom to take full advantage of natural light. Arrange the fixed elements along inside walls to reduce bottlenecks and maximize the natural light in the space. The design should encourage traffic pathways that minimize disruption and avoid activity areas. Walls or partition patterns with offsets will allow more intimate areas for children without obstructing teachers' views to the activity area. Corner areas, which provide natural boundaries, can set apart an activity area.

GSA recommends including the following architectural features in the open activity area:

- Acoustically treated surfaces to reduce noise.
- Full-spectrum lighting, capable of being dimmed, to supplement natural light.
- Corner angles that are blunt. It is important to avoid acute or 90-degree angles on outside corners projecting into the space. Provide a 1/2-inch radius or beveled edge on all outside corners of constructed features.
- Ample counter areas at child height for work surfaces and display areas. Consider a counter near the windows for growing plants and conducting nature studies.

- Adequate electrical outlets. These can serve counter areas, for items such as radios, tape players, televisions, projectors, and keyboards. Locate outlets for this kind of equipment out of reach for children, at least 4.5 ft. above the finished floor, so that children cannot reach the outlet or pull equipment off counters by using cords connected to low-mounted outlets.
- Consideration of how the child views his or her surroundings. Spending time on the floor at a small child's viewing level is a helpful exercise for a designer of children's spaces.
- Furnishings that are child-scale, including tables, chairs, and open storage units. Adult-sized comfortable seating is also needed. Bulletin boards and other display areas should be placed at children's height. Continuous strips from which to hang children's art are strongly recommended. These strips may be placed at approximately 3.2 ft. to 4.5 ft. above the finished floor.
- Adequate storage for all curriculum materials and supplies. Refer to the discussion on storage in this chapter.

7.5.6 Activity Area for Infants

The infant open activity area offers opportunities for discovery and learning. This area must be a safe, soft, print-rich, stimulating environment in which babies can crawl, explore, and interact with their teachers.

GSA recommends providing the following architectural features in the infant classroom:

- Soft-surfaced level changes. The level changes should be slight, with a maximum of 3 to 4 inches between levels. There should be a soft, cushioned space with a variety of textures and coverings. Level changes can be created using constructed platforms with ramps, or stacked upholstered blocks in various configurations. Maximum unenclosed platform height for padded level changes should be 1.5 ft. above the floor. An enclosed raised area for infants at 3 ft. above floor level should be considered so that the infants can be at eyelevel with seated adults and see the entire room.
- Nests and crawl spaces to provide a safe environment for infant exploration. These spaces can be constructed with low, permanent, soft barriers or with movable objects.
- Low padded grab bars at 1.5 ft. above floor level to help infants pull up to a standing position. These bars also may aid an infant's sense of security while developing walking skills. A minimum total length of 5 ft. should be provided in each infant classroom.
- Adequate flooring. Under the licensing requirements in some states, carpet is not allowed in infant rooms. Floors that are not padded should be constructed of tile, linoleum, or wood to facilitate daily mopping and sanitizing. Soft areas can be provided using area rugs, floor mats, etc., if they have anti-slip surfaces to prevent accidents and can be easily cleaned/sanitized.
- Views to the outside and to the circulation pathways from floor level, if possible.
- Interesting things to observe from a baby's point of view. These include views from adult seating and standing height while the child is being held.
- Mirrors at floor level so babies can see reflections. Approximately 1.5-ft. minimum height above the finished floor is recommended. Mirror material must be shatterproof: safety glass, acrylic, or reflective metal. Edges must not be sharp.

7.5.7 Activity Area For Toddlers

The toddler open activity area should offer an even greater range of opportunities for exploring and greater challenges in developing large motor skills. Toddlers move very quickly, often in groups of two or three. The activity area must allow for running and cruising (movement through the space to view and select from a variety of activities) without disrupting children in other activities.

GSA recommends providing the following architectural features in the open activity area for older toddlers:

- Broader pathways to accommodate group movement or cruising.
- Intimate spaces that allow toddlers to maintain visual connection with the teacher.
- Hard-surface, impervious flooring throughout, unless the initial design meetings reveal a strong predilection towards carpet - for instance, in particularly cold climates. In that case, the amount of carpet will be determined during the initial design concept phase. Area carpets with non-skid backing and mats should be provided for quiet areas. Lofts that accommodate three to five children and platform areas for larger gatherings should provide a greater challenge than those in the infant areas. Refer to the loft and platform area discussion in this chapter for more information.
- Sand and water play areas. This might consist of freestanding tables or troughs with nearby hooks for smocks and towels. An impervious floor finish must be provided. Provide a floor drain, if feasible, though this will not usually be feasible in an existing building. Sand and water play can occur in the art sink area. Art sinks should be provided for older toddlers but not young toddlers.

7.5.8 Activity Area For Pre-School Children

The pre-school open activity area is larger than the younger children's area due to the greater number in this group and their increased energy and variety of activities. Pre-school children are involved in a wide range of activities. Their level of skill enables them to take part in more advanced activities, requiring a greater number of interest areas configured for small groups of children.

GSA suggests providing the following architectural features in the pre-school classroom:

- Design the space to allow for maturing skills in large muscle development. Refer to the discussion on lofts and platforms in Section 7.6 this chapter.
- Provide flexible spacing to allow for different configurations for different activities, i.e., making the block area bigger to allow for building of a city, and expanding the dramatic play area for a "hospital" or a "restaurant," and so forth.
- Allow for sand and water play using freestanding tables or troughs, with nearby hooks for smocks and towels. An impervious waterproof floor finish and a floor drain should be used where feasible. Sand and water play also can occur in the art sink area.
- Include hard, impervious floor surfacing throughout, with area rugs for quiet areas, unless the initial design meetings reveal a strong predilection towards carpet. In that case, the amount of carpet will be determined during the initial design concept phase.

7.6 Lofts/Platforms

Lofts and platform areas are optional constructed elements within the classroom. They can offer many activity opportunities and advantages. Lofts and platforms are not appropriate for every classroom.

because they can minimize flexibility. Lofts must always be designed with the safety of the child in mind. This means that constructed elements should reduce the risk of children falling from the loft. Typically, lofts will be purchased pieces of equipment that the architect-engineer will accommodate in the design.

Lofts with slides and steps offer a variety of experiences. However, it is best for circulation if they are descending in the same direction. It is important to coordinate sprinkler requirements to avoid having to sprinkle under lofts or risk having children too close to sprinklers.

7.6.1 Infant Lofts and Platforms

Infant classrooms require soft, colorful crawling areas with slight level changes, such as low, carpeted, constructed platforms, movable foam shapes, or forms that provide level changes. Ramps or small 3-to-4-inch steps should be used between levels. All corners should be rounded and all surfaces should be soft and minimize falls. The maximum total height of platforms for infants is 18 inches.

Recessed constructed areas provide infants with large, contained spaces in which to move and explore. The low retaining sides allow infants to pull themselves up and move. Similar portable low boundaries might also work well. Caution must be used in permanently constructing such an area so as not to reduce classroom flexibility.

7.6.2 Toddler and Pre-School Lofts and Platforms

Lofts enhance toddler and pre-school classrooms by offering:

- Challenging, large-muscle activities.
- Small intimate spaces.
- Additional spaces for exploration.
- Opportunities for a child to view the environment from another level.
- A classroom with more character.

The following design requirements are suggested by GSA and should be considered in the design of a loft for toddler and pre-school age groups:

- Lofts should be no higher than 3 ft. above the finished floor for toddlers and 4.5 ft. above the finished floor for pre-school children. They should be designed to minimize conflict and should allow more than one child to use the equipment. For instance, offering stairs going up and a slide coming down will minimize congestion and possible conflict.
- Loft features meeting the definition for fall zones must be provided with resilient surfaces, as prescribed by the CPSC's *Handbook for Public Playground Safety*. Refer to Chapter 6, Play Yard Surfaces.
- Lofts should meet local, state, or other standards that may apply.
- Guardrails should be provided to protect children from falling from raised areas. Toddlers should have guardrails on any constructed surface more than 10 inches above adjacent surfaces. Pre-school children should have guardrails on any raised surface more than 20 inches above floor level. The top of the guardrail must be at least 2.5 ft. above the platform, or in accordance with local codes, whichever is more stringent. Openings between 3.5 and 9 inches should be avoided to prevent head entrapment. Avoiding openings between 0.3 inch and 1 inch will prevent finger and hand entrapment.

- Protective barriers should be provided on all raised surfaces 2.5 ft. above floor level or higher for pre-school and younger children. Protective barriers can be vertical slats, or preferably acrylic panels (for clear visibility). Openings in these panels should not be larger than 3 inches to prevent entrapment. Avoid using horizontal rails that allow climbing.
- All protruding corners should have a minimum radius of 1/2 inch.
- Teachers must be able to see and easily reach all areas of a loft.
- The loft should present an image of safety, avoiding overly challenging elements such as cantilevers or narrow bridges.
- Level changes should be appropriate to the age group and accessible by ramps, steps, or ladders. Steps and ladders should allow two children to use them at the same time to avoid aggressive behavior. Riser heights for stairs should be a maximum of 5 inches for toddlers and pre-school children. Minimum tread depth is approximately 11 inches. Stairs and ramps should be a minimum of 3 ft. wide.
- Handrails should be provided for all stairs and ramps at 22 inches above the leading edge of the treads. All handrails should adjoin the wall to avoid the possibility of injury. Handrails also should meet state, tribal, and local codes.

7.7 Other Areas

In addition to the spaces required in the classroom, spaces located elsewhere in the center can provide specialized activity settings for children, teachers, and parents. These areas should not be considered part of the minimum activity square footage area required in the classroom.

7.7.1 Art Sink

The art area should include storage, display, drying areas for finished work or work-in-progress, and an art sink. For toddler and preschool classrooms, GSA suggests providing a stainless sink with a gooseneck faucet and wrist handles mounted in a 22-inch-high counter for children to use in art and other activities requiring water and cleanup, such as sand and water play. The gooseneck faucet allows teachers and children to place a bucket under the faucet. Traps should be easily accessible for cleaning. The counter should be 16 to 22 inches deep, allowing children to reach the faucet. Provide 3 to 4 ft. of open counter length adjacent to the sink. It is good practice to provide an adult height art sink in all toddler and preschool classrooms. Faucets and levers should be located behind the sink adjacent to the wall, rather than at the side of the sink. Faucet controls should be no less than 14 inches from the leading edge of the counter. See Chapter 10, Section 10.4, Accessibility, for ADAAG-required heights of elements for the disabled child.

The art sink should be next to table areas, because most art activities require similar tables and finishes. This sink should be close to display walls equipped with dry marker boards or chalkboards. Sheet impervious floor coverings with sealed seams and a floor drain should be installed in this area, if feasible.

7.7.2 Toilets and Sink

For toddlers and pre-school children, GSA suggests the following plumbing requirements. Refer to the State and local requirements when planning the number of toilets to use in centers.

- A minimum of two toilets in the center, but not less that one toilet and two child- height-hand washing sinks in each classroom area that uses a toileting facility. Include one lavatory and one drinking fountain for every 10 children. Note: It is reasonable for two classrooms to share one toilet area.
- Toddlers: Two adult sinks at a minimum, one for diapering in the toddler room and one for food preparation.
- Preschoolers: One adult sink, one or two hand washing sinks for every 10-20 children, and one connection for water play.

These toilet areas may be used by both girls and boys and may be partially screened. They must also meet ADA requirements. If doors are provided, they should not lock. This offers some privacy but allows adult supervision. Toilet areas are to have gates or half doors at entrances and may have child-height partitioning between toilets. As with all full-height doors, these elements should have hinge protection, so that children's hands and fingers are not accidentally pinched or crushed.

An adult toilet should be located outside the older toddler and pre-school classrooms and either in or near infant and young toddler classrooms.

Classroom toilets should be placed toward the interior perimeter to leave the exterior free for access to natural light and views. They should be constructed as part of the fixed elements and, to the extent possible, should share plumbing walls with other areas requiring plumbing connections. The toilet area should be physically separated from food preparation and eating areas, and partially screened from the view of remaining spaces. Hand-washing sinks may be located within the toilet area, but are best placed in the classroom on a wall adjacent to the toilet area. This will facilitate supervision and reduce congestion in the toilet area.

Toilets are to be child-size for toddlers, but may be adult-sized for pre-school children. They must be accessible to children with special needs.

Toddler and pre-school toilet areas should have durable, water-resistant finishes and bright, cheerful lighting. Recommended flooring includes ceramic tile with integral cove base, and a ceramic tile wainscot to 3 ft. above the floor with a painted wall above.

GSA suggests the following features for the toilet area:

- For toddlers, a toilet seat height of approximately 11 inches, including the seat. Preschoolers who are four to five years old may use adult-size toilets.
- A floor drain.
- A toilet tissue dispenser next to toilet.
- Exhaust ventilation.

GSA recommended features for the hand-washing sink include:

- A sink mounted 22 inches above the floor and counters 16 to 22 inches deep, allowing children to reach controls. Junior-height wash fountains may also be used with a wash basin rim height of approximately 25 inches.
- The temperature of hot water, if used, should be controlled to a maximum of 109.4° F. Hot water heaters should be placed where they are not accessible to children.
- Soap dispensers at each sink.

- One paper towel dispenser per sink area. Metered roll dispensers are preferred. The dispenser should not have a serrated edge. Even though rolled goods are usually more economical and environmentally sensitive, some existing centers have noted that children often waste rolled goods because they lack the coordination to tear rolled paper easily.
- One freestanding pedal-operated waste receptacle per sink area. The metal receptacles should not have sharp edges.
- Waste receptacles that are not built-in.
- Safety mirrors mounted at child height.

7.7.3 Diapering Station and Storage Areas

A diapering station and diaper storage area should be included in each classroom serving infants or toddlers. Locate this area in an easily accessible, central location, but separate it from the food preparation and eating areas. Orient the diapering station so that a teacher, while diapering a baby or toddler, can maintain visual supervision of the other children, and the children can see the teacher. This component should be constructed as part of the fixed elements within the classroom to economize on plumbing connections.

The diapering station and storage area consist of a changing table, countertop with sink, waste bin, and upper storage cabinets for diapers and other supplies. All equipment and storage needed for this area must be within easy reach for the teachers at the changing table, without requiring them to move away from the infant.

The diapering station should be designed to reduce possible transmission of blood-borne pathogens. The table should be easily sanitized or sterilized, and all material contaminated with feces should be stored in a hygiene-safe manner in sealed receptacles.

Suggested equipment for the diaper station:

- Changing table: A changing table should have an impervious surface. The top surface should be at least 2.8 ft. above the floor. There must be a safety device on either side of the baby, such as a tubular rail to provide side restraint 3 inches above the surface of the mat. Since mats are typically 1 inch thick, the top of the rail should be approximately 4 inches above the surface of the changing table. The table should be 2 ft. wide and 3.3 ft. long. It should have a waterproof covered pad. There may be additional local licensing requirements.
- Hand-washing sink: The sink should have sloped sides and be within reach of the changing table. It should have hands-free or wrist-blade faucet controls. Diaper sinks should not have gooseneck faucets, because this type of faucet results in more splashing than standard faucets.
- Paper towel, soap, and rubber glove dispensers: These fixtures should be within reach of the teacher at the changing table.
- Open compartmentalized upper cabinets: These should be approximately 9 inches wide, 9 inches high, and 12 inches deep.
- Waste storage for disposable diapers in waterproof, washable containers with disposable plastic liners. The waste storage must be covered with an airtight lid. It must be within reach of the teacher at the changing table and be operable with one hand. A pedal-operated waste container may be used and placed under the counter out of reach of children. If both cloth and disposable diapers are used, separate containers should be provided.

- Movable or retractable steps to help toddlers onto the changing table. Steps are also particularly helpful for caregivers whose backs may be challenged by excessive lifting.
- Exhaust ventilation. A diapering station with exhaust ventilation free from drafts would be ideal. Recommended finishes include impervious flooring and millwork, countertops, and a wall splash. Wall surfaces adjacent to the changing table should have impervious finishes. Because disinfectants are used to clean the changing table surface, finishes must be unaffected by them.

7.7.4 Sleeping and Napping Areas

Special areas for sleeping are provided in infant rooms, and often in young toddler rooms. Infant sleeping areas should be quiet and pleasant in a somewhat separate space within the classroom where infants can sleep according to their individual schedules. Teachers must have visual and acoustical accessibility to this area at all times. Locate sleeping areas away from active areas. Separate this area with partial walls that are no more than 4 ft. high.

It is not advisable to install glass above, as this may qualify the nap area as a separate sleeping area. In that case, some licensing authorities might require a teacher to be stationed in the nap room. Allow ample space for one crib per infant, placed 36 inches apart. Recommended finishes include carpeted floor and painted walls above an impervious wainscot, a washable, glossy paint, or other washable surface. Use lighting that may be dimmed. Exterior windows may require window treatment to control direct sunlight.

A crib should be provided for each infant and young toddler. One of every four cribs should be an evacuation crib, especially constructed for this purpose, equipped with 4-inch wheels, and capable of holding and transporting up to five infants. The evacuation crib(s) should be placed closest to the emergency egress point and must be capable of easily passing through a 3-ft.-wide door. Sleeping areas should be equipped with smoke detectors. Recommended fire safety requirements for children's sleeping rooms can be found in the safety section of Chapter 10.

Older toddler and pre-school classrooms generally will not have space allocated for a sleeping area, but will provide napping cots that can be stored within the classroom when not in use. There may be cases when a few cribs are needed in a toddler classroom.

7.7.5 Nursing and Lactation Area

A quiet, semiprivate area in the infant classroom may be provided for a mother to visit and nurse her infant, or for lactation purposes. It is wise to locate this space near the sleeping area with some visual separation from the other areas of the classroom and from the circulation pathways. This space should be near a sink and be as comfortable as possible, with adjacent counter space and a carpeted floor. Furnishings should include at least one comfortable chair.

7.7.6 Food Preparation

Children usually eat in their classrooms with teachers. A food preparation area should be provided in infant and young toddler classrooms for storing and heating bottles and other prepared food brought from home.

Infant and young toddler food preparation areas should be conveniently located. Placing food preparation areas near activity areas provides teachers with clear views of the classroom. The area should be adjacent to the eating/table area and separated from the diapering station, toilet, and hand-washing areas.

The food preparation areas in classrooms may include the following heavy-duty items:

- Upper and lower washable cabinet storage. GSA recommends providing childproof latches or locks to prevent child access to any storage within reach.
- Counter area. It is wise to provide an adult-scale impervious counter, a minimum of 8 ft. long with a back splash. The top of the counter should be 2.8 ft. high. Drawer and door pulls should be non-projecting types. Hinges should be heavy duty and durable because they receive intensive use, and one cabinet should be lockable.
- Sink. The sink should have a single-lever faucet, spray hose, and garbage disposal. Limit the hot water temperature to 109.4°F.
- A bottle warmer, such as a crockpot.
- A refrigerator. Provide a minimum of 8 cubic feet of refrigerator storage and a lockable box in each refrigerator for storing medication.
- Finishes. Recommended finishes include impervious flooring and a gloss-painted wall above an impervious wainscot. Plastic laminate finishes include laminate countertop, cabinet face, and back splash. Use post-formed counters with integral coves and bullnose. Ceiling tile should have washable facing.

7.7.7 Eating/Table Area

Meal and snack times in the classroom are opportunities for children and their teachers to enjoy social interaction in small groups, much as the family might do in the home. A parent may join the child at the table to share lunch. Usually, this area is part of the open, unrestricted portion of the classroom, and is used for other activities during the day.

Small infants are held during bottle-feeding, while older infants who are able to sit may be placed in a low high chair while being fed soft foods. Traditional high chairs are not recommended due to risk of falling and tipping and the reduced opportunity for social interaction. Provide low stools for the teachers to sit on while feeding older infants. Provide a gliding chair or other comfortable chair for the teachers to sit in while bottle-feeding. Locate the infant eating space near the food preparation area, away from the open, unrestricted area where other infants may be moving about. Young toddlers may be seated at the same table. Rectangular tables may make better use of table space than round tables.

Locate eating/table areas for older children in a central location, away from toilet areas in a pleasant area with natural light and lots of displayed items of interest, such as plants. For toddlers and older children, the eating/table area is part of the general activity space.

Children older than infant age need movable chairs and tables of appropriate scale for their eating area. Storable tables might be used so the room can accommodate other activities. Each toddler and pre-school classroom should provide a separate, room-temperature drinking fountain, preferably in the eating area. Mount the drinking fountain at 1.8 ft. above the floor in a central location on a plumbing wall for toddlers. For pre-school children and in general areas, mount the fountain at 2.6 ft.

Recommended finishes for the eating/table areas include sheet vinyl flooring and a vinyl wall covering or a high-gloss, washable painted wall.

7.7.8 Child-Accessible Display

Shelving placed low to the floor allows children to see available curriculum materials and make selections. These materials may be items such as books, art supplies and equipment, manipulative toys, large or small blocks, pull or push toys, and socio-dramatic materials. GSA suggests using open shelving approximately 16 inches deep by 30 inches high for this purpose. Small items requiring further organi-

zation can be placed on this shelving in containers, such as plastic tubs, or wire or wicker baskets. Shelving can be built-in millwork or freestanding movable units. Where appropriate, shelving open on both sides should be considered, since it creates more open feeling in the classroom. If shelving backing is used, it should be attractive and useful. For instance, it may be mirrored with non-breakable reflective material. The movable units lend greater flexibility, though they should be equipped with locking casters. A combination of built-in and freestanding units will offer the best design solution. Some state, tribal, and local codes may require these units to be fixed to the floor.

7.7.9 Classroom and Teacher Storage

It is essential for classroom design to include adequate storage for the items required for a quality program. Nothing conveys a cluttered, chaotic, and shoddy impression more than inadequate storage. Storage for cots, strolling equipment, curriculum materials, and supplies is necessary. Use of doors on storage areas to be used by children should be minimized, because doors can cause finger entrapment and there is a greater possibility of an accident occurring when there is inadequate supervision. When doors are necessary for storage equipment used by children, they should have full-vision panels, and their hardware should allow a trapped child to exit when the door is locked from the outside. Alcoves without doors can function well for storing stackable cots.

GSA suggests providing some lockable storage within the classroom, with some cabinets above children's reach or behind a door to limit access. There should be one lockable cabinet in each run of cabinets. This storage area may be necessary for storing classroom equipment, materials, and supplies. Hooks and pegboards can provide easy storage of aprons and small equipment.

Other storage might include overhead cabinets or shelves in a food preparation area. It is wise to provide a lockable cabinet, above children's reach, in this area for storage of items such as medications, cleaners, and other restricted items. Medications should be stored in the refrigerator, if required, or in a locked cabinet.

7.7.10 Teacher's Storage

GSA suggests that some lockable storage be provided in the classroom for teachers to store outdoor clothing and other personal belongings. This storage may be located in the storage area or in cabinets intended for the teacher's use. Teachers may also need a closet with a rod for hanging coats and shelving above the rods.

7.7.11 Multiple-Purpose and Motor-Activity Spaces

GSA suggests providing a versatile, large, open area for activities, if space is available. Such spaces are less important where the climate is temperate and allows extensive use of the exterior with a play yard. A multipurpose space is especially important where the climate is such that the large-muscle activity that would occur typically on a playground must take place indoors. This indoor space can also be used for group gatherings or meetings.

Locating the multipurpose room near the kitchen and including a pass-through can increase the versatility of the room. Multi-purpose space should be flexible enough to offer a variety of opportunities for large-muscle activity. It also should be provided if adequate outdoor play yard space is not available in the short term, but it should never be considered an adequate permanent substitute for exterior play. Play equipment should be carefully considered to ensure that it would work well within the confines of an enclosed room. Such a room may have features such as sprinklers and pendant-hung lighting fixtures that must be accommodated. Windows are not as important in multipurpose space as they are in class-

rooms, although natural lighting from non-breakable skylights is highly desirable and energy efficient. It may be wise to include movable partitions and a carpeted raised area for dramatic play in the multipurpose space.

GSA suggests providing the following architectural features for multipurpose areas:

- High ceilings.
- Acoustical treatment on walls and ceilings, together with possible acoustical separation between the multipurpose room and adjoining rooms.
- Impervious flooring. If carpeted areas are desired for soft areas, they should be provided by non-slip area rugs.
- A hard, durable, washable surface as a wall finish.

The following architectural features and equipment are advisable for large motor activities:

- Play equipment. (Refer to CPSC requirements in the *Handbook for Public Playground Safety*).
- Protective resilient surfaces in fall zones.
- Hard-surface pathways for wheeled toys.
- Storage for equipment and supplies.

7.7.12 Sick Bay

The sick bay is used for temporary isolation of ill children until they can be taken home. In some locations a sick bay is required, but they are rarely used. Typically a sick child waits on a cot in an alcove adjacent to the center director's office, if state licensing allows, rather than in seclusion.

If the sick bay is a separate space, GSA advises locating it adjacent to the director's office or other program staff offices for uninterrupted supervision. GSA suggests that it should be near a toilet and should include a cot or bed with a nightlight. This area should have simple, pleasant, finishes that are easy to clean, and lockable storage for first aid supplies. A bookshelf for the storage of books and toys is appropriate. A view to the exterior is preferred.

7.7.13 Service Spaces

Spaces for service areas such as the kitchen, laundry, janitor's closet, and telephone equipment room should be to the rear of the facility near the service entrance and removed from children's activities. Major food staging and serving activities should be centralized in a kitchen area. The service areas, in general, should not be accessible to children, although children can be provided views of interesting activities occurring in the kitchen. For example, it is desirable to locate the multipurpose area near the kitchen, which makes it easy for children to work on cooking projects such as making cookies and placing them on baking sheets. Such an arrangement also provides a venue for group lunches and other gatherings. The kitchen should be near the pre-school classrooms, since these children are primary users of the kitchen.

7.7.14 Kitchen

The type of food service provided to the center affects the scope and size of the kitchen area. GSA does not make recommendations about standards, codes, and requirements for full commercial kitchens with deep-fat fryers, ventilation hoods, and similar equipment. If the center includes a kitchen of this type, it is recommended that a food service specialist be consulted as part of design services.

Typically, the architect-engineer should not design a commercial kitchen on a scale that may trigger the need for sophisticated venting and hood-mounted fire suppression equipment. Especially in existing buildings, this type of commercial kitchen could force expensive modifications that could affect the rest of the building. For instance, in a multi-story building, this type of kitchen may require openings through several floors as well as through the roof structure to accommodate a vent duct.

The kitchen should be accessible to service personnel, staff, and other adults. For safety reasons, children will not be in this space unless escorted by an adult whenever dangers such as hot oil are present. The kitchen should be in a central location with access to the service entrance, near the multiple-purpose area, and separate from the classrooms. GSA suggests providing the following:

- A stainless steel, three-compartment, deep sink with required plumbing and hot and cold water connections near the dishwasher and a gooseneck faucet.
- A separate hand-washing sink.
- A garbage disposal with plumbing connections.
- A floor drain.
- A heavy duty, commercial-type dishwasher.
- A commercial-type refrigerator with storage at or below 39.2°F and freezer storage at or below -0.4°F. (Many centers will require two refrigerators and one or two commercial freezers. This issue needs to be clarified during initial design meetings and depends on state and local requirements.)
- A microwave oven. This appliance should not be used for formula or baby food.
- A convection oven and range.
- A range.
- Adequate counter space (2-ft. minimum depth).
- Closed storage for dry food, equipment, and supplies on wire metal shelves above the floor.
- A recycling bin.
- Commercial-type kitchen equipment with highly washable finishes, such as stainless steel.
- A dietitian's corner with a telephone to use to order food.
- Ample, easily washed metal cabinets with interior shelving within reach of cooks.
- Stainless steel countertops and highly washable, seamless wall surfaces made for kitchens.
- Impervious, durable, easily cleaned floor finish.
- Washable ceiling finish.

GSA believes that it is vitally important to provide space for two or more stainless steel food carts. Adequate lighting, ventilation, and clearances are required. Locked storage for any hazardous materials should be provided. For food not requiring refrigeration, provide clean, dry, well-ventilated storage off the floor. Shelving in kitchen areas should not be exposed wood, as this is difficult to clean adequately. Metal wire shelving is the best choice for this purpose. Provide storage for all utensils and equipment off the floor in a clean, dry, closed space. No sewage or drainpipes should be allowed above food storage, preparation, or service areas. Ample electrical outlets with ground-fault interruption in wet areas should be provided and placed out of children's reach.

7.7.15 Laundry

GSA advises that the laundry room should only be accessible to adults. It should be located near the infant/toddler classrooms, but convenient to the food service areas. For acoustical purposes and to ensure adult-controlled access, the laundry room should be away from children's areas and have a lockable door that can be opened from inside. Ideally, the laundry room should be close to an exterior wall to minimize the run of the dryer exhaust vent to the exterior. Note that dryer exhausts contain combustible lint, which can present a fire hazard when the exhaust is excessive. Dryers must be vented separately and not combined with other building exhaust systems.

Recommended equipment includes a heavy-duty residential-type washer and dryer. Large centers may require additional equipment. GSA suggests an electrical power outlet, venting, plumbing connections, floor drain, deep sink, and millwork with closed, lockable storage. If space and budget allow, it is desirable to include a dishwasher in this area to wash toys that are often soiled by children. There should be a counter for folding clothes and wall lockable cabinets for cleaning supply storage.

7.7.16 Janitor's Closet

Service personnel and staff can use this space for storing janitorial supplies and equipment. GSA suggests a mop sink with plumbing connections and storage for pails, mops, vacuums, and related cleaning supplies and equipment. The door should have a lock that can be opened from the inside and cabinets with locks for cleaning supplies. Exhaust ventilation is recommended. The closet should be provided with proper fire detection devices according to the code.

7.7.17 Service Entrance

A key-access service entrance is usually needed by service personnel to deliver food and supplies and for trash removal. This entrance should be accessible to maintenance and kitchen staff. GSA suggests locating the entrance next to service areas, away from the front entry and children's activity areas.

7.8 Mechanical/Electrical/Telephone Equipment

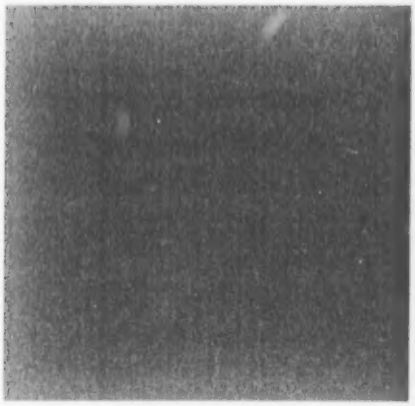
Except when they are freestanding buildings, centers typically will be provided with mechanical service by the central plant. When freestanding, interior space should be provided for mechanical equipment, or rooftop equipment will have to be used. However, the decision to use rooftop equipment should be carefully weighed. The decision-makers should consider the additional maintenance and possible damage to the roof that this configuration entails. This precaution is particularly applicable to regions of the country with significant precipitation. GSA suggests using equipment and systems that will have low long-term operating and maintenance costs.

Space for telephone service should be centrally located and separate from the children's areas, although a dedicated telephone closet is not always necessary. If one is provided, it should have a lockable door that is not accessible by children, but which can be opened from the inside. Finishes may include painted walls and a sealed concrete floor.

7.9 Design Features to Avoid

The following is a short list of center features that GSA has found to be impractical or not conducive to improving the environment. These are commonly observed undesirable conditions, and the list is not exhaustive:

- Excessive areas of fixed carpet.
- Sinks that are not deep enough.
- Shelving that caregivers cannot reach.
- Excessive space devoted to toilet areas, because separate areas have been provided for each classroom, as opposed to shared toilet areas between classrooms. Note that when separate toilet rooms are provided, ADA-mandated wheelchair clearances must be allocated in each toilet room. Thus, instead of providing clearance once in a shared toilet room, the same clearance must be provided twice. This is not an economical use of space.
- Cubbies that are lined up facing the classroom. This condition wastes precious classroom wall space and creates a chaotic visual impression.
- Solid interior doors that do not allow supervision.
- Inadequate or improper storage, creating crowded chaotic-looking classroom environments. Note that large central storage rooms will not solve a center's storage problems. Instead, wall-mounted cabinets and closets close to children's activity areas in the classroom are essential.
- Diapering areas that face walls and do not allow supervision while diapering.
- Diapering areas are not adjacent to sinks.
- Ceiling-mounted institutional troffer-type fluorescent light fixtures without dimmers and with poor color rendition, such as those typical of office space, together with a lack of other light sources for task lighting.
- The use of 90-degree or acute-angled walls where an obtuse angle would be safer and easier to negotiate.
- Windows mounted too high for children's use or, in existing space, without risers to allow accessing the view.
- Long dead-end corridors. The designer should strive to maximize efficiency and not devote areas to solely utilitarian circulation. Corridors that must be lengthy because of site configuration need stopping, cueing, and socializing areas.
- Inadequate natural light.
- Misuse of color and patterns. This includes over-stimulating, over-bright, or dark and oppressive wall colors and patterns. These mistakes usually result from relying on sample color chips. Color use should be based on large samples.



Furnishings and Equipment

This chapter provides suggestions regarding furnishings and equipment for a center, and includes references to applicable codes and regulations.

8.1 General Criteria

Refer to 45 CFR 1304.53(b)(1) for Head Start Performance Standards concerning equipment and furniture for Head Start centers.

GSA suggests the following general criteria for center furnishings and equipment:

- Child-scale for child use.
- Adult-scale for adult use.
- Safe.
- Easily cleaned.
- Adaptable, flexible, movable.
- Dual purpose, where appropriate.
- Stackable or hangable, if possible.
- Not institutional in appearance.
- Soft and comfortable, when appropriate.
- Constructed of natural materials. Furnishings should contain minimal amounts of formaldehyde and other chemicals, which may affect children, particularly those with allergies.
- Texture-rich.
- Color schemes that are calm, soothing, and coordinated.

Furnishings and equipment within a center should meet all applicable codes and standards. The following criteria for play equipment for children, is also available for reference:

- Consumer Product Safety Commission standards.
- American Society for Testing and Materials (ASTM) for Juvenile Products, including the following standards:
  - ✓ Chairs with high sides or foam nests for infant feeding - ASTM F- 404.
  - ✓ Cribs - ASTM F-966 and ASTM F-1169.
  - ✓ Carriages/strollers - ASTM F-833.
  - ✓ Gates/enclosures - ASTM F-406.
  - ✓ Hook-on chairs - ASTM F1235.
  - ✓ Toy safety - ASTM F-963.

GSA recommends evacuation cribs for all infants and young toddlers in the ratio of one for every four children. These special cribs must be of durable construction, be narrow enough to pass through a 3-ft.-wide door, and have sturdy caster wheels approximately 4 inches in diameter, which allow one person to easily roll the cribs over different indoor/outdoor surfaces. The evacuation crib should have the capability of supporting and transporting a minimum of five 18-month-old children weighing a total of 121 lbs. Evacuation cribs should be placed close to the exit in the sleeping rooms. They also may function as standard sleeping cribs.

8.1.1 Storage

GSA advises that adequate storage space, which is easily accessible and near at hand, should be provided for items such as carriages and strollers, wheeled toys, and cots or mats for pre-school classrooms. In the initial design process, the designer should elicit the number and approximate size of the equipment to be stored.

Storage within the classrooms should be adequate to allow the classroom to appear uncluttered when occupied and to meet functional needs. A combination of low open shelving, baskets, drawers, cabinets with doors, boxes, chests, hooks that do not present a hazard, adult-height shelves, wall-hung cabinets, storage bags, buckets, crates and bins may be used.

8.1.2 Flammability Codes and Standards

All textiles and upholstered components should comply with the applicable interior finish requirements stated in the Head Start Program Performance Standards, and any other local or state standards that apply. In addition, compliance with the following is strongly suggested:

8.1.3 Upholstered Furniture

GSA suggests that the furniture meet the following criteria:

- NFPA 260: Pass.
- Consumer Product Safety Commission, FF-4-72 (mattresses and pads): Pass.
- NFPA 260: Class I -Draperies, Curtains, Banners, Canvas, Decorative Hangings.
- NFPA-701 (small and large scale): Pass.

8.1.4 Chemicals

- Volatile organic compounds (VOCs): Carpets should be tested for VOCs and bear a green label from the Carpet and Rug Institute indicating that the carpet emissions are within the acceptable range.
- Formaldehyde: Products should contain less than 0.05 parts per million (ppm) of formaldehyde. Any product purchased with formaldehyde levels above 0.05 ppm should bear a label in accordance with 29 CFR 1910.1048.

8.1.5 Safety

Shelving, table tops, and counters should have 1/2-inch rounded edges. Furnishings in children's areas that are 3 ft. high or higher should be secured in place. Local codes may require all large furnishings to be secured in place. Mirrors should be shatterproof and constructed of safety glass, acrylic, or reflective metal.

8.1.6 Storage Units

Storage units for the children must be visible, accessible, and easy to use. Units may be dual purpose, serving as space dividers, as well as storage. They may be movable with locking casters, except where local codes prohibit, and should be designed to prevent climbing. Shelving open on both sides creates an uncluttered, light appearance. Sometimes it is desirable to place a back on a shelving unit. Units with unattractive backing that does not integrate with the rest of the storage unit should not be purchased.

8.1.7 Seating

Adult seating in the infant and toddler classroom should be soft and comfortable and provide a place where teachers can nurture children. GSA recommends that child-scaled seating include upholstered or exposed frame chairs, foam cubes, carpeted constructed seating, or cushions and pillows. To avoid suffocation, beanbag pillows should not be used for infants.

8.1.8 Tables and Chairs

Tables and chairs should be scaled to the child. GSA suggests that the table height for infants should be approximately 12 inches; for toddlers, 16 inches; and for pre-school children, 20 inches. Chair seating height for toddlers should be 10 inches and for pre-school children, 12 inches. Infants and toddlers require high-sided chairs. Seating should have backs and arms with a seat height of approximately 8 to 12 inches for pre-kindergarten children. Work surfaces or tables should have appropriate knee clearance for children in wheelchairs and shall be 24 inches above the finished floor, 24 inches deep, and 30 inches wide. Top surface height should be a maximum of 2 inches higher than knee clearance. Adjustable height is preferred.

8.1.9 Countertops

Countertops should be approximately 18 inches above the finished floor for toddlers and 20 inches above the floor for pre-school children. Counter depth should be 18 to 20 inches when accessed from only one side. Counters that children can access from both sides encourage socialization and should not be less than 24 inches deep.

8.2 Playground Equipment

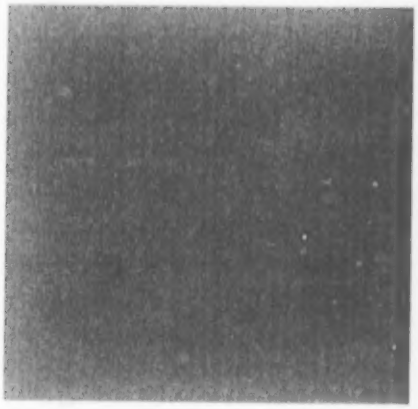
The basic purpose of playground equipment is to stimulate play and offer challenges while safeguarding children and minimizing hazards. Play structures should be versatile and allow opportunities to rearrange elements for imaginative play.

Major parameters in determining quality in playground equipment are durability, low maintenance, safety, functionality, challenge, and appeal to the child. All equipment should comply with the CPSC's *Handbook for Public Playground Safety*.

Safety guidelines regarding playground equipment shall be followed. Refer to ASTM F1148-88 (Home Playground Equipment) and ASTM F15.29 (Entrapment, Installation and Maintenance, Materials, Terminology, Falls, Environmental), ASTM 1487-95, PS 83-97, F1292 and the Consumer Product Safety Commission requirements. Refer also to the American Public Health Association and American Academy of Pediatrics in the publication *Caring for Our Children; National Health and Safety Performance Standards: Guidelines for Out-Of-Home Child Care Programs*, 1992, particularly Appendices 0-1 through 0-12, for recommendations on playground equipment.

Major types of playground equipment include:

- Slides
- Tire swings
- Climbing equipment
- Sand and water tables
- Playhouses
- Benches/seating
- Crawl-through structures
- Tables/seating
- Balancing equipment
- Wheeled toys
- Platforms/lofts
- Trash receptacles



Interior Finishes

This chapter discusses suggested finishes for centers.

9.1 General Requirements

Because safety is of the utmost importance, GSA suggests that finishes meet all local or state smoke and flame spread requirements. In addition, GSA suggests that designers consider the off-gassing and toxicity of materials. Because children are more vulnerable to toxic materials than adults, GSA suggests the following rigorous requirements:

- Test carpets for volatile organic compounds (VOCs) and request a green label from the Carpet and Rug Institute indicating that the carpet emissions are within the acceptable range.
- The carpet should meet the State of Washington Standards. Adhesives should be the least toxic, effective products available. Reference the AIA *Environmental Resource Guide*, with the 1997 supplement.
- The carpet should be recyclable to reduce the nation's waste stream per Executive Order.
- Formaldehyde: Products should contain less than 0.05 parts per million (ppm) of formaldehyde. Any product purchased with formaldehyde levels above 0.05 ppm must bear a label in accordance with 29 CFR 1910.1048. Chamber tests of materials can substantiate formaldehyde content.
- Allow adequate time in the construction schedule to ventilate gas-containing materials. In new centers, allow up to one month between the installation of materials that need to off-gas and the occupancy of the center. Renovations should allow the maximum feasible time to off-gas, up to one month, but in no case less than one week. Use mechanical means, if necessary, to ventilate the space once renovation is complete.

Durability, maintenance requirements, life-cycle costs, appropriateness, and the aesthetics should be considered when choosing finishes. In addition, the selection should be environmentally sensitive, be constructed of recycled materials, and offer the possibility of being recycled.

Small-scale finish materials, such as bricks, are typically preferable to large pre-cast panels, because a brick's dimension is more congruent with the size of a child and his or her home experience. Finishes should emphasize natural materials that harmonize a variety of textures, colors, and shapes.

All construction should be designed for safe use by children and should comply with the following criteria:

- Rounded (bullnosed) outside corners (minimum radius 1/2 inch).
- Non-toxic finishes.
- Finished hardwood with eased edges to reduce splinters.
- Slip-resistant floor coverings.
- Sealed seams and joints for sanitary cleaning and reduction of tripping hazards.
- Connections that do not project.
- Impervious finishes at wet areas.
- Protective resilient fall zones under interior climbing equipment in accordance with the CPSC's *Handbook for Public Playground Safety*.
- Additional protection for gypsum wallboard, such as veneered plaste or some other means to toughen otherwise vulnerable surfaces in high-use areas, such as multipurpose rooms and corridors.

9.2 Color and Texture

GSA points out that both color and texture have a great influence on children. The sense of touch is directly related to cognitive development. Color has far-reaching effects that influence behavior. While cool colors tend to have a calming effect, and warm colors tend to create warmth and excitement, a consistent extreme of either is not desirable.

9.2.1 Use of Color

GSA advises that the overuse of a strong color scheme should be avoided, as this may result in over-stimulated, excited behavior. The predominant color above the level of the wainscot should be neutral, preferably off-white. Apply stronger, more vivid colors only as accents in smaller areas. Children's clothing is usually much more colorful than that of adults, and their toys and art add a great deal of color to the environment. Therefore, little color statement is required on the part of the designer. Do not use primary colors on walls. They should be used as accents. Too little color is better than too much in an environment where children will spend a great deal of time. Avoid complex patterns on walls and floor coverings. Select colors appropriate to the activity, using color cues to identify particular areas. Choose warm instead of bright hues.

9.2.2 Use of Texture

GSA suggests providing a variety of textures on surfaces within reach of children, especially for infants and toddlers. Use soft textures whenever possible, especially in quiet or sleeping areas, to promote relaxed and quiet behavior. Hard textures are more appropriate for areas where livelier behavior occurs. The use of subtle, varied, natural textures is encouraged, because they are soothing and interesting to children.

9.3 Types of Finish Materials

The following GSA suggestions for finishes for floors, walls, and ceilings, may help Head Start designers select finishes.

9.3.1 Wall Finishes

- Paint: Paint should be non-toxic with 200 grams/liter of VOC or less. The paint should contain a minimum of 50 percent post-consumer waste paint taken from community collections. In addition, it should be lead and chromate free, as defined by Department of Housing and Urban Development guidelines, and should not contain any of the EPA 17 chemicals. More information is available on the Internet from GSA's Paints and Chemicals Center at 1-800-241-RAIN (7246) or GSA Advantage! at the following address: http://www.gsa.gov. The e-mail address is paintschemctr.auburn@gsa.gov.
- High-build coatings are very durable and can be scrubbed. They should be used in high-wear areas. Allow ample time to off-gas in projects where specified.
- Glazed coatings are appropriate for wet areas.

- Vinyl wall coverings, Type II are durable with Oznaburg fabric backing. Vinyl wall coverings should be neutral in color and able to be scrubbed. Allow ample time to off-gas in projects where specified. Reference the AIA *Environmental Resource Guide* with Supplements for guidance on adhesives. Vinyl coverings typically may require corner guards to deter delamination at corners in a high-use facility. Ensure that corner guards have a minimum 1/2-inch radius bullnose.
- Textiles on vertical surfaces within reach of children are not recommended, but they work well for surfaces, such as bulletin boards, above children's reach.
- Glazed ceramic tile is appropriate for wet areas, such as toilets and kitchens. Ceramic tile is durable, non-porous, and easily cleaned, especially if the grout material is epoxy. Sound deflection can be a problem with this finish.
- Display surfaces: Chalkboards, marker boards, and magnet boards may be provided as a wainscot up to 3 ft. or higher. Display systems requiring tacks should not be used, and tape may damage finishes. The baseline amount of space available for display for each classroom should be 8 ft. long and 3 ft. high. Consider art waxer equipment, which allows children's art to adhere to finishes without clamps, tacks, or tape.
- Mirror: Provide shatterproof mirror surfaces, particularly in crawling and toddler areas. Provide grab bars in front of mirrors for infants and toddlers. Mirrors should be constructed of safety glass, acrylic, or reflective metal. Mirror space for infants and toddlers should be 6 ft. long, and 1.5 ft. high per classroom.

9.3.2 Floor Finishes

- Carpet is most appropriate in quiet areas and crawling spaces. Carpets can retain dust and other allergens to which many children are susceptible, so fixed carpet over a large area is not recommended. The carpet selected should include a high-quality yarn system (currently type 6.6 nylon) with inherent stain resistance; a minimum face yarn density of 5000; low-level loop or cut-pile construction (maximum pile height, 1/4 inch); a minimum of 10 stitches per inch; and an anti-microbial feature; a 6 ft. minimum width and a backing system. The recommended backing system should be permanently bonded, with a permanent moisture barrier, installed with factory-applied adhesive with seams sealed on-site. The designer also should consider using a carpet with subtle flecks, patterns, or color variations that do not accentuate wear. Refer to the AIA *Environmental Resource Guide*, 1997 Supplement, for environmental recommendations including the types of adhesive to be used.
- Sheet vinyl is recommended for children's toilets, wet areas, and kitchens. Sheet vinyl is capable of receiving chemically sealed seams at joints and an integral cove base to create a moisture barrier. Provide a high-quality commercial grade with a high vinyl content, a minimum 0.05-inch wear layer, and 860 kPa. Provide slip- resistant materials in wet areas. The designer also should consider using material with subtle flecks, patterns, or color variations, which do not accentuate scuffs and wear. This material should not be used without adequate time to off gas, as defined above. Refer to the AIA *Environmental Resource Guide*, with Supplements.
- Resilient vinyl tile: Although this material is economical, it requires higher maintenance than sheet vinyl. It is durable and can be scrubbed, but cannot form a moisture barrier because it has many joints. This material is not to be used without adequate time to off-gas, as defined above.
- Linoleum is a material without the off-gassing problems associated with vinyl. It is very durable and can be used in similar conditions as vinyl.

- Fluid-applied flooring: This material can be costly, but it is durable and easily cleaned and can create a moisture barrier. However, it can also result in an undesirable, institutional appearance. This material should not be used without adequate time to off-gas, as defined above.
- Sealed concrete is economical and appropriate for hard-surface areas. With an appropriate admixture, stain, and finish, it can dispel the impression that it is unfriendly or industrial.
- Rugs provide comfort and are economical. Tripping/slipping hazards created by rugs should be addressed through use of proper underlayment pads designed for rugs, or by the use of effective edge binding and transitions. Non-slip surfacing on the reverse side of throw rugs is essential.
- Ceramic mosaic slip-resistant tile is appropriate and decorative for wet areas.

9.4 Ceilings

- Because it is economical, the majority of children's areas will have acoustical ceiling tile,0.8 to 1 inch thick, with effective acoustical ceiling treatment. Where fluorescent fixtures that are integral with the ceiling must be used because the ceiling is too low, 2ft. x 2 ft. fixtures will render a less institutional appearance and offer greater flexibility. However, the designer should consider the benefits of incorporating other materials that can render a more home-like environment, such as gypsum board bulkheads and soffits, where practical, as well as a variety of lighting.
- Painted gypsum board is appropriate in areas with soffits, ceiling height changes, vaults, or wet areas. Gypsum board is not recommended for ceiling areas where access is required in the ceiling plenum for plumbing, air conditioning, or other equipment.
- Exposed structural ceiling elements provide children with an interesting environment, and may increase the perceived height in low spaces. However, this can also require additional acoustical treatment, such as the addition of acoustical baffles.
- Luminous ceilings should not be used in areas occupied by children.

9.5 Finish Schedule

Table 9.1: Key to Finish Schedule

Floor		Walls and Wainscot		Case goods	
C	Carpet	PNT	Paint	Wood	Wood
SV	Sheet Vinyl	VWC	Vinyl Wall covering	PL	Plastic Laminate
SC	Sealed Concrete	CT	Ceramic Tile	MTL	Painted,
MAT	Recessed Walk-Off Mat				Anodized, or Polished
RF	Protective Resilient Flooring				Metal
Lin	Linoleum				

Base		Ceiling	
RB	Resilient Base	AM	Acoustical Material
SV	Sheet Vinyl (integral cove)	GWB	Gypsum Wall Board

Table 9.2: Example of Finishes for Centers

The following is a sample of a finish schedule. In selecting the finishes for an actual project, the choice should reflect the situation and conditions on-site. For instance, the existing underlayment can influence the choice. The following schedule is provided for guidance. All paint should be easily washable, and oil-based paint should not be used.

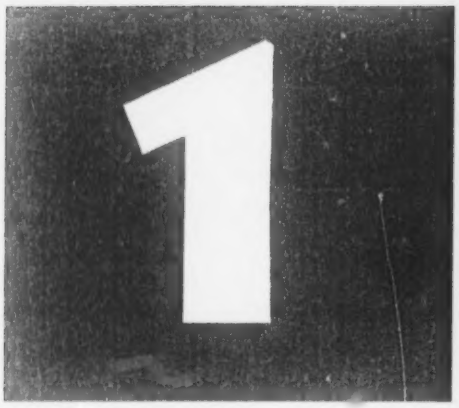
	Floors					
Space	Matl.	Base	Walls	Wainscot	Ceiling	Casegoods
Vestibule	MAT	RB	VWC		AM	
Reception	CPT	RB	VWC	-	AM	
Main Circulation	SV/LIN	RB	PNT	VWC	AM	-
Director's Office	CPT	RB	PNT	-	AM	
Sick Bay	SV	RB	PNT		AM	-
Staff Lounge	CPT/SV/LIN	RB	PNT	-	AM	Wood/PL/LIN
Parent/Teacher Conference	CPT	RB	VWC	-	AM	Wood/PL/LIN
Adult Toilet	SV/LIN	SV	PNT	CT/VWC	GWB	Wood/PL/LIN
Central Storage	SV/LIN	RB	PNT	-	AM	PL/LIN
Laundry	SV/LIN	RB	PNT	-	AM	PL/LIN
Kitchen	SV/LIN	RB	PNT		GWB	MTL/PL/Wood/LIN
Janitor's Closet	SV/LIN	RB	PNT	-	GWB	
Telephone Closet	SC	-	PNT	-	-	-

Multiple-Purpose Space						
Play Area	SV/RF	RB	PNT	VWC/ LIN	AM	
Meeting Area	CPT	RB	PNT	VWC/LIN	AM	
Play Yard Storage	SC	-	PNT	-	-	MTL
*Infant Activity Area	+CPT	RB	PNT	VWC/LIN	AM	Wood/PL/LIN
*Toddler Activity Area	CPT & SV/LIN	RB	PNT	VWC/LIN	AM	Wood/PL/LIN
*Pre-School Activity Area	CPT & SV/LIN	+RB	PNT	VWC/LIN	AM	Wood/PL/LIN
*School-Age Activity Area	CPT& SV/ LIN	+RB	PNT	VWC/LIN	AM	Wood/PL/LIN
Cubby Storage Area/Locker	SV/LIN	RB	PNT	VWC/LIN	AM	Wood/PL/LIN
Food Preparation	SV/LIN	RB	PNT	VWC/LIN	AM	Wood/PL/LIN
Eating/Table Area	SV/LIN	RB	PNT	VWC/LIN	AM	-
Children's Art Sink	SV/LIN	RB	PNT	VWC/LIN	AM	Wood/PL/LIN
Sleeping/Crib	CPT	RB	PNT	VWC/LIN	AM	-
Diapering Station	SV/LIN	RB	PNT	VWC/LIN	AM	PL/LIN
Children's Toilet	SV/LIN	SV	PNT	CT	AM	
Children's Hand washing Sink	SV/LIN	SV	PNT	CT	AM	PL/LIN
Children's Private Toilet	SV/LIN	SV	PNT	CT	AM	PL/LIN
Storage	SV/LIN	RB	PNT	-	GWB	

+Carpet tiles, which can be easily replaced work best

*Recommended finishes for each classroom include approximately 50-75 percent sheet vinyl floor covering. Permanently installed carpeting around toddler lofts and seating areas is desirable. However, installed carpeting has been found to be difficult to clean and maintain. It also lowers the flexibility of the classroom. Non-slip throw rugs, which come in a variety of shapes and colors, have been found to be a better choice to alleviate the institutional appearance of a predominantly sheet vinyl floor finish. It is important that vinyl extend under areas of art sinks, sand and water play, tables for eating, painting and other "messy" activities - in other words, most of the classroom completely. Consider hazards and slipping problems when selecting and designing floor finishes. Wall finish may be washable paint above a vinyl wall covering wainscot.

Note: All PL counters should have a minimum 3.9-inch back splash when they meet partitions.



TECHNICAL CRITERIA

This chapter provides suggested technical criteria for the design and construction of elements and systems in a center. Refer to 45 CFR 1304.53(a) and (b) for pertinent Head Start Performance Standards.

10.1 Safety

GSA advises that center design and location are of the utmost importance to safety. Safety is a fundamental planning consideration, involving security, design, agency, and operations stakeholders. The following applicable requirements are in the most recent edition of the *National Fire Protection Association (NFPA), Standard No. 101, Life Safety Code*, as modified:

- Mount panic hardware on egress doors a maximum of 3 ft. above the finished floor.
- Provide both audible and visual fire alarm signals. In addition to fire alarms that sound in the center itself, any fire event should be annunciated on the central building panel or a 24-hour manned security post. See the most current editions of NFPA 72 Chapter 5 and UL 1971 for requirements on audible and visible alarms.
- Every effort shall be made to locate the entire center on the ground level (level of exit egress) either along an outside wall with window access to the exterior, or along a courtyard with window access. Centers adjacent to a courtyard should have approved fire egress out of the courtyard itself to an area of safety. If portions of the center are located on the floor above the level of exit egress, only pre-school children should be housed there. In no instance shall any portion of the center be located higher in the building more than the floor above the level of egress. The center should not be located below a level of egress, unless the entire building is fitted for sprinklers and the arrangement is approved by the local fire authority. All arrangements should ensure safe egress in the event of fire. The center should have at least one door leading directly to the outside. Each center should have at least two means of egress with exits via protected corridors including the required fire separations. There should be two means of egress for each floor. State and local requirements will affect this design.
- It would be advisable to separate Head Start centers from other occupancies, depending on the fire gradient of the adjacent occupancy. In no case should the separation be less than a minimum of a one-hour fire-resistant-rated wall with doors with a fire protection rating of not less than 20 minutes. A fire detection, alarm, and communications system should be installed in all centers that meet the requirements of the NFPA Standards No. 70, NEC, NFPA 72, *Standard for the Installation, Maintenance, and Use of Protective Signaling Systems, NFPA 72E, Standard on Automatic Fire Detector*. The design should comply with local and state fire safety requirements. In the event of conflict, the more stringent requirements should apply.
- Adjacent hazardous areas, e.g., a boiler room without sprinklers, shall be separated from the center by a minimum two-hour fire-resistant-rated wall with self-closing doors with a fire protection rating of not less than 90 minutes.
- Adjacent hazardous areas, e.g., a boiler room with sprinklers should be separated from the center by a minimum one-hour fire-resistant-rated wall with self-closing doors with a fire protection rating of not less than 45 minutes.
- The center should be protected by an approved supervised automatic system using quick-response sprinkler heads throughout. In areas such as multipurpose rooms where there may be ball throwing activities, for instance, sprinklers should have guards.

- The sleeping and napping areas of the center should be protected by an approved supervised smoke detection system. Smoke detectors should be installed in all areas of the center, especially in unoccupied areas, including closets and closed space. This provision enhances flexibility, since it allows the location of sleeping and napping areas that require smoke detection to be changed in the future.
- Dead-end corridors should not exceed 20 ft. Travel distance within any room in the center to a door leading to a means of egress should not exceed 50 ft., and travel distance from that point to an exit should not exceed 98 ft.
- It is advisable to test all existing painted surfaces in the interior of the center for lead-based paint and to follow Department of Housing and Urban Development (HUD) guidelines. In addition, exterior paint in an area that children may access should be tested. All lead-based paint detected should be abated using HUD procedures and retested to ensure compliance. Refer to *Lead-Based Paint: Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing*, 1990 (HUD).
- For new and major renovations that involve plumbing, it is advisable to test all sources of water used by the center for lead at the acceptance of the substantially completed project. Buildings over 25 years old should be tested annually, at a minimum using guidance in the Environmental Protection Agency pamphlet *Lead in School's Drinking Water*, EPA 570/9-89-001, January 1989. If the lead levels exceed 20 parts per billion, the affected water supply should not be used and mitigation actions should be taken.
- The center or the area anticipated to house the center should be surveyed for the presence of asbestos-containing materials. Any asbestos-containing materials that are damaged or subject to disturbance should be abated in accordance with regulatory requirements and guidelines. In a limited area of the country, typically with highly acidic drinking water, water may also contain asbestos. Although this is considered less hazardous than friable asbestos found in buildings, the drinking water supply should be tested for the presence of asbestos and means taken to eliminate it, if it poses a hazard. (See **Raising Children Toxic Free** by Needleman and Landrigan, referenced in the "Selected References" section of the guide.)
- It is advisable to test the center for radon in the air using alpha track detectors or electric ion chambers for a minimum of 90 days. If radon levels are at, or exceed, 4 picoCuries per liter, mitigation actions should be taken. Allow a new center to "air out" before occupancy. GSA recommends that the schedule of work provide ventilation for off-gassing of new synthetic materials for 30 days.
- If the drinking water used by the center is obtained from a non-public water source, test the center for radon in water. Environmental Protection Agency guidelines should be used for testing as prescribed in *Radon in Water Sampling Manual* (EPA/EERF-Manual-78-1). If radon levels are at, or exceed, 300 picoCuries per liter, the affected water supply should not be used and mitigation actions should be taken followed by retesting.
- When screened operable windows are used, guards should be installed to protect children from falling through the screens.
- There should not be any sharp edges within children's areas. All corners on trim, counters, partitions, and shelving should have rounded edges with a 1/2 inch minimum radius. In areas accessible to children, there should not be any openings between 3.5 and 9 inches to prevent head entrapment.

- Interior glass should not present a safety risk for children and should comply with code. Only glass that will not break in close proximity to children's activities, or will not harm children or puncture skin when glass is broken, should be used.
- Locked storage for medications and dangerous products should be provided. Additionally, child-proof interior hardware devices should be mounted on the interior of cabinets that are within children's reach.

10.2 Security

The purpose of security measures is to keep children safe within the center, to safeguard them from outside intruders, and to protect them from hazards to the fullest extent possible. GSA recommends that systems include equipment, electrical power, and conduit as required. All security alarms should report to an alarm system or to a central monitoring station as an audible and visual alarm signal, or both. Security equipment may include perimeter security alarm systems, and video surveillance for entrance doors and vestibules. GSA recommends providing the following:

- A video camera at the entry/egress doors. Video cameras are recommended when the center entrance cannot be seen by the building security staff, or if a security risk assessment prescribes video monitoring at the entrance.
- An electronic security system, including alarms, cameras and hardware. Monitors should be at the director's office. To conform to the ADA requirement to lower mounting heights for fire pulls and duress alarms while also minimizing children's access to them, these devices should have covers.
- A keypad at the entry door for authorized entry to the center without relying on staff assistance or monitoring. The location and the size of the buttons should be suitable for use by the disabled.
- Alarms at all entry points and delayed alarm locks at exit doors. Exit doors not intended for children's use should be equipped with electronic magnetic locks.
- Duress alarms, if prescribed by a security risk assessment.
- Emergency alarm signals that are audible and visible.

10.2.1 Security Influences on Design

Additional safety issues can affect space planning. GSA suggests treating the perimeter of the building and play yards as a controlled filter with only one primary means of public access and egress. All other service and emergency egress points should be controlled, with access limited to authorized individuals.

Recommendations:

- The entry approach should be visible by center staff located inside. Position the reception area adjacent to the entry and director's office.
- The design should ensure that a child would be unable to leave or be taken from the center without the knowledge of the staff. For instance, the designer should avoid placing operable windows in the vicinity of a public sidewalk, and be mindful of the ability of children to open egress doors.

10.3 Sustainable Design

The term *embodied energy* describes the amount of energy needed to produce a specific building material. The embodied energy of all materials in a building, plus the energy needed to heat, cool, operate, and light it equals its total energy budget over its lifespan. The designer should choose materials with low embodied energy to lower the total energy budget, and may wish to refer to the AIA Environmental *Resource Guide*, with supplements, for guidance.

The designer's material selection should show a clear intention of using products with low impact on the environment and children's health. The designer also should incorporate features and systems that will lower the use of energy in building operation. The designer should also suggest materials that will minimize the impact on the nation's waste stream, e.g., by using materials that have high salvage value or can be reused when the center is renovated in the future.

10.4 Accessibility

The site, as well as the access to and from the center should comply with the current edition of the *Uniform Federal Accessibility Standards (UFAS)*, the final rules of the Americans with Disabilities Act Accessibility Guidelines (ADAAG), and local accessibility codes, whichever is most stringent. The designer should ensure that there is an accessible route to all ground-level play areas.

Standards for buildings and facilities, including scoping and technical requirements for accessibility to and within buildings with child care facilities, were issued on January 13, 1998. The standards are available via the Internet at www.access-board.gov/rules/child.htm or from the Department of Justice. Head Start design teams may wish to examine this reference.

10.4.1 Access to Outdoor Play Yards

Circulation surfaces in the play yards should be suitable for wheelchair use.

10.5 Historic Preservation

GSA advises that, if a center is housed in a building included or eligible for inclusion in the National Register of Historical Places (NRHP), or if the center or its playground is in visible, close proximity to such a building, the center design should retain, respond to, and respect the use and character of the historic structure(s).

Work on historic buildings, structures, or properties should comply with the Secretary of the Interior's *Standards for Rehabilitation and Guidelines for Rehabilitating Historic Structures* (current edition) and the *Fire Safety Retrofitting in Historic Buildings* (August 1989), jointly written by the Advisory Council on Historic Preservation and the General Services Administration.

10.6 Acoustics

Acoustical concerns are (1) controlling exterior noise entering the space; (2) modulating and controlling the transfer of interior noise generated within the space; and (3) controlling the transfer of noise between the center and adjacent tenants.

10.6.1 Control of Exterior Noise

Minimizing exterior noise is typically required only when the center is adjacent to or near airport flight paths, major highways, or busy rail lines. If proximity to high levels of noise is unavoidable, acoustical measures may be necessary. Maximum acceptable noise levels depend on which area of the center is subjected to the noise and whether the sound is continuous or intermittent. Suggested maximum acceptable noise levels at the center's exterior follow:

Outdoor play yards:

Continuous: 70 dBA

Intermittent: 80 dBA

Centers with sleeping and quiet areas placed next to outside wall:

Continuous: 60 dBA

Intermittent: 65 dBA

Centers with sleeping and quiet areas protected and not located along outside walls:

Continuous: 65 dBA

Intermittent: 70 dBA

If noise exceeds these levels, acoustical treatment may be necessary. Under these circumstances, GSA recommends the following:

- All window and door glazing should be acoustically laminated glass with an STC rating of 35 to 45, having an air space of 2 to 4 inches. (Conventional double-glazing and thermal glazing are not effective in this case.)
- Exterior doors should be high-quality commercial doors with an STC rating of 30.
- Sound-rated doors are an acceptable but more costly solution.

10.6.2 Modulating Interior Noise Generated Within the Space

In addition to standard commercial construction, other provisions are necessary to ensure sound control within a center:

- Acoustical ceiling tile should be installed throughout the center, except in service areas.
- Either non-slip throw rugs or permanently installed carpet should be used in appropriate spaces. Carpet may be particularly effective in noisy narrow corridors.
- Acoustical panels should be installed where appropriate.
- Baffles, banners, and fabrics should be considered in the design to help absorb the sound generated within a center.

10.6.3 Controlling the Transfer of Noise Within the Space

Maintaining low noise levels in sleeping/napping and quiet areas is important. The following methods can be used:

- Extend interior partitions to the structure above the ceiling Partitions may be single- layer gypsum wallboard, but should have cavity insulation and be completely caulked at the top and bottom.
- Use solid-core doors for openings onto noisy areas.
- Use fabrics and baffles to absorb sound.
- Provide acoustical baffles in all ductwork that penetrates sound-attenuating partitions.
- Avoid back-to-back electrical outlet boxes.

10.6.4 Controlling the Transfer of Sound to Adjoining Spaces Outside Center

- Separation between centers and adjacent office space is recommended to be STC55. This may involve considerable expense, since partitions should not only be insulated but also should continue to the structure above any suspended ceiling. Additionally, joints may require complete caulking.
- No door or window openings should be placed in walls adjoining other building tenants.
- Acoustical baffles should be provided in all ductwork that penetrates sound-attenuating partitions.

10.7 Windows, Doors, and Hardware

10.7.1 Windows

Natural light into the interior, visual access from the interior to the outside, and visual access within the center are all important in environments for children. GSA advises that windows should be provided from classrooms to the outside, between classrooms, and from classrooms to circulation paths.

Both children and adults should be considered. The height and scale of windows, type of glass, clear view, control of light, and safety factors should be weighed.

The designer should provide an exterior window for every classroom as a minimum. If an interior space will be occupied by children, the design should allow optimal access to light and view via skylights, sidelights, windows, and clear lite doors with safety glass. GSA suggests that children's spaces have a total window area of *at least*:

- Eight percent of the floor area of the room, if windows face south directly to the outdoors.
- Ten percent of the floor area of the room, if windows face east or west.
- Fifteen percent of the floor area of the room, if windows face north.
- Twenty percent of the floor area of the room, if windows are not on an exterior wall. These windows must be oriented to capture the maximum natural light. Toilets, kitchen areas, laundry areas, multipurpose rooms, offices, conference rooms, lounges, and storage rooms do not need windows.

Windows systems (glazing, frames, anchorage to supporting walls, etc.) on the exterior facades of centers should be designed to mitigate the hazard of glass fragments or panes of glass flying into occupied space following an explosion at the exterior. The design must balance the features of the glazing, framing, and attachments with the capacity of the supporting structure to allow the system to have maximum resistance. Horizontal window muntins (horizontal mullions) should not be located between 2 ft. and 3.6 ft. above the finished floor, because they could be used as climbing support.

Windows should be placed lower at children's viewing height above the floor. Maximum windowsill heights for children are 1.5 ft. above the finished floor for infants, 2 ft. above the finished floor for toddlers, and 2.5 ft. above the finished floor for pre-school children. Sill placement lower than 1.5 ft. above the floor is undesirable, because furniture may be difficult to place in front of such a window. For the same reason, and due to the likelihood of drafts, glass to the floor is undesirable.

Windows and doors with glass lower than 3 ft. above the finished floor should have safety guards, or be constructed of safety-grade glass/polymer, and should be equipped with a vision strip. Wire glass would best be replaced with an approved alternative, if cost permits. All glazing should be clear glass. Tinted glass is not recommended, except when matching existing glazing, as in a renovation project.

10.7.2 Standards for Safety Glass

GSA suggest using the following standards:

- Consumer Product Safety Commission, 16 CFR, Part 1201, Safety Standard for Architectural Glazing.
- ANSI Z97.1, Safety Performance Specifications and Methods of Testing for Safety Glazing Materials Used in Buildings.

Depending on local code requirements, operable windows may be mandatory to provide for rescue and/or ventilation. All operable windows should have draft deflectors, screens, and safety locks, and their design should prevent children from falling through. Exterior window glazing should be insulated glass. Interior windows should not be insulated, although interior spaces requiring acoustical separation may employ laminated glazing.

There should be light control and energy conservation features on all exterior windows in children's areas, either by exterior or interior methods. In new construction, exterior overhangs, low-E- glass, or both should be included in many areas of the country. They may be highly cost effective over the life cycle of the building, and may well justify a higher initial cost, particularly in elevations with excessive heat gain. Overhangs are highly desirable, but should be designed so they do not restrict natural light excessively, especially during winter months.

In addition, simple blinds, shades, or draperies should also be used where it is important to control light and heat gain. Valances may also provide color, sound absorption, and a noninstitutional appearance.

It makes sense to allow the staff flexibility in changing window treatments. Exterior windows in napping/sleeping areas may require window treatments to control direct sunlight. Light levels in all rooms, including sleeping rooms, should be maintained at a sufficient level to provide visual observation of the space from adjoining spaces. All blind cords should be kept out of children's reach.

10.7.3 Doors

GSA advises that doors and openings should include the following:

- Vision panels should be at adult and child viewing height, except on doors to adult toilets.

- All clear opening widths of doors in paths of egress should be a minimum of 3 ft. wide to allow for crib movement.
- Interior doors should swing in the direction of emergency egress. Exit doors should swing to the exterior. GSA advises avoiding Dutch doors, because children's fingers could be injured in the hinge space. In addition, young children are vulnerable to injury when they strike projecting hinges. Inexpensive devices fitting over hinges are available on the market and should be used to ensure safety.
- It is advisable to use panic hardware on exit doors in centers. Since this hardware is accessible to children, centers should consider installing alarms on doors with delayed-activation hardware for emergencies. Also, the designer should select doors that require the maximum amount of force allowed by ADAAG and applicable codes.

10.7.4 Hardware

All door hardware should comply with UFAS. Lever types appropriate for use by the disabled should be used on all door locks, on latch sets, and on the opposite side of a door leaf with a panic hardware device. To prevent injury, all doors should have closers that restrict the rate of closure. Doors accessible to children should have hardware operable from both sides, using components with smooth edges and without sharp protrusions. Door openings intended only for adult use should have hardware installed at adult height. Panic hardware should be mounted as per code.

All egress doors should be equipped with appropriate emergency hardware. Doors to the exterior that are not for children's use should have electronic magnetic locks that operate in an emergency. Main entrance doors should have an electronic strike release with a keypad or a card reader and remote release. Keypads and card readers must meet UFAS standards.

10.8 Plumbing

GSA recommends the following plumbing features:

- Provide paper towel and soap dispensers at all sinks, including art sinks. These dispensers should not contain serrated edges.
- Provide easily reached clean-outs for waste piping.
- Provide a shut-off valve for each fixture, so that maintenance procedures do not affect multiple plumbing facilities.
- Provide a floor drain in each toilet for children, in the laundry, and in each water play activity area.
- Provide hot water supplies accessible to children, with a controlled temperature not to exceed 105° F unless local regulation requires otherwise. Provide a hot water supply to the dishwasher.
- Provide drinking fountains with a mouth guard and an angled jet with a spout height of no more than 21 inches above the finished floor.
- Check drinking fountains to ensure they are not contributing to high levels of lead or asbestos in water.
- Use lead-free solder for domestic water piping.
- For recommendations on toilet and sink mounting heights, see Section 7.7.2.

Table 10.1: Plumbing Connections

Space	Plumbing Connections
Water Play, Classroom	faucet and floor drain Sink (desirable)
Adult Toilet	Sink, toilet, floor drain
Laundry	Connections/drain/floor drain
Kitchen	Sink, disposal
Janitor's Closet	Mop sink
Pre-School Activity Area	Floor drain (at water play) (desirable)
Food Preparation	Sink
Eating/Table Area	Drinking fountain
Children's Art Sink	Sink, drain (floor drain desirable)
Diapering Station	Sink, drain (large floor drain desirable)
Children's Toilet	Toilet, floor drain
Children's Hand-Washing Sink	Sink, drain (floor drain desirable)
Children's Private Toilet	Sink, toilet, drains (floor drain desirable)
Play Yard	Hose bibb for water play, drain, drinking fountain (optional, depending on center need)

10.9 Heating/Ventilation/Air Conditioning

The comfort and safety of the children and adults in the center are of prime importance. GSA suggests the following standards for temperature and ventilation.

10.9.1 Temperature and Humidity Levels

Temperature and humidity should be maintained within ranges stated below. Temperature levels are measured at lower than normal heights above the floor in order to accommodate children. Children spend a great deal of time on the floor; therefore, it is important to control temperature and avoid drafts. GSA suggests maximum insulation of floors (depending on the project location), including perimeter insulation of floor slabs. Heating systems installed in the floor slab are not recommended due to problems with maintenance and flexibility.

The following guidelines are the acceptable temperature and humidity ranges (measured at 3 ft. above the finished floor):

- Winter: 69.8 °F and 35 percent minimum relative humidity.
- Summer: 75.2° -78.8°F and 50 percent maximum relative humidity.

Tamper-proof thermostats should be located at least 3 ft. above the finished floor to monitor the temperature at a child's level. The optimum temperature control is zoned, and it should be appropriately adjusted for different activity areas. For instance, infant areas may be more comfortable at 1-3 degrees warmer temperatures than other areas. The design A/E needs to consider this issue and make recommendations for the optimal solution to heating and cooling distribution at the concept development stage. Thermostats should be accessible to the center director or other designated staff members.

10.9.2 Ventilation Equipment

In addition to heating and cooling equipment, a humidifier/dehumidifier may be needed to meet suggested levels. Each space should be supplied with a minimum of 15 liters/second of outside air for each occupant in order to control odors. None of this air is to be returned to the rest of the building. To ensure comfort levels, the air motion in the occupied space shall not exceed 8,000 mm per minute.

There should be proper exhaust venting for range and clothes dryer. It is wise to consider noise level, service, and efficiency when locating equipment. Whenever possible, HVAC should be separate from the other building systems. Apart from other advantages, this will facilitate better filtration of the dust and molds to which many children are particularly sensitive. Air diffusers can be used to minimize drafts on children.

10.9.3 Safety Issues

The following restrictions are suggested by GSA:

- Prohibit portable electric fans.
- Prohibit space heaters.
- Vent heating units that use flame properly to the outside and supply them with sufficient combustion air.
- Ensure that heating units hotter than 109.4°F are inaccessible to children by using barriers such as guards or locks.
- Keep cords out of the reach of children.

10.10 Lighting

Well-considered lighting for each activity area is a key element in creating a home-like environment. The quality of light should remind children of a residential environment. Use broad ambient lighting for large-muscle activity spaces. Task lighting is important for manipulative activities. Lower light levels are needed for quiet and sleeping areas.

GSA suggests that the amount and orientation of natural light should be considered in the design. Variation in light levels up to a maximum of 500 lx should be acceptable in rooms with poor natural lighting capability. See Table 10.2 for the minimum suggested light levels for various functions. In addition the following should be provided:

- Use 500 lux (lx) on children's work surface for reading and close work.
- Use 250 lx ambient light for class and play areas, with additional task lighting up to 500 lx provided where appropriate.

- Ensure that light is capable of being dimmed in a range of 500 lx to 50 lx for sleeping and napping areas.
- Use 100 lx in stairs and corridors.
- Install dimmable light fixtures in classrooms and nap rooms.

Light levels in all rooms, including sleeping rooms, should be maintained at a sufficient level to allow observation of the space from adjoining spaces. Lighting should be used to emphasize areas, designate boundaries, create an environment, or support a certain activity.

When using fluorescent lighting, electronic ballast light fixtures are recommended. Their high-frequency cycles avoid perceptible flickering and allow dimming. Fluorescent lamps should have a color temperature of 4,100 degrees Kelvin with the highest possible color-rendering index (CRI). Minimum CRI should be 80 or greater. This is of paramount importance to the center's environmental quality. If there is adequate ceiling height, the better quality of reflected, ambient lighting from pendants or recesses is strongly preferred to troffer-style downlight fluorescent fixtures.

With reflected light, children, who are at a far lower vantage point than adults, will not look directly into the light source — a cause of glare and eye fatigue. If troffer use is unavoidable, a specular finish and parabolic louver are recommended. Provide dimmable lighting in infant sleep areas and in all the classrooms. Task lights, such as those provided by residential-type pendant fixtures, should be used for reading, painting, and close work.

It is advisable to design for variety in lighting, using devices such as dimming controls, separate switching, adjustable directional fixtures, and pendant fixtures positioned over work areas. Consider using specialized lighting to display artwork, pools of light to create excitement and variety, and high levels of light to encourage physical activity. Provide food preparation areas with fixtures that have shielded or shatterproof bulbs.

Light entering from the exterior can be controlled with adjustable blinds, shades, or other types of window coverings. Window treatments on interior windows should allow clear visibility.

It is wise to ensure that there is adequate exterior lighting on a building to allow safe exterior circulation and site security.

All lamps should have shatterproof lenses or covers.

Table 10.2: Lighting Requirements

Space	Natural Light	Lighting (in lux (lx))
Vestibule	View	250 - 350
Reception	View	250 - 350
Main Circulation		100 - 350
Director's Office	View	500
Sick Bay		300 - 500 (dimmable)
Staff Lounge	View	500 (dimmable)
Parent/Teacher Conference		500 (dimmable)
Adult Toilet		150 - 250
Central Storage		250 - 350
Laundry		300 - 400
Kitchen		300 - 500
Janitor's Closet		300 - 400
Telephone Closet		400 - 500
Multipurpose Space		
Play Area		300 - 500
Meeting Area		300 - 500 (dimmable)
Play Yard Storage		300 - 500
Infant Activity Area	Natural light	250 - 500 (quiet areas dimmable)
Toddler Activity Area	Natural light	300 - 1000 (quiet areas dimmable)
Pre-Schooler Activity Area	Natural light	300 - 1000 (quiet areas dimmable)
School-Age Activity Area	Natural light	300 - 1000 (quiet areas dimmable)
Cubby Storage Area/Locker		300 - 500
Food Preparation		300 - 500
Eating	Natural light	300 - 500
Children's Art Sink	Natural light	500 - 1000 (dimmable)
Sleeping/Crib/Napping		50 - 500 (dimmable)
Diapering Station		300 - 500
Children's Toilet		300 - 500
Children's Hand-washing Sink		300 - 500
Children's Private Toilet		300 - 500

10.11 Electrical

Safety of the children and consideration of future electrical needs are critical. All data, equipment, and communication requirements should be defined in advance to prevent the need to expand in the future.

10.11.1 Safety Issues

GSA advises that if other applicable codes and standards are deemed more stringent than the standards below, the most stringent standards should apply:

- Outlets in areas accessible to children must be tamper resistant as defined by NEC Article 517-18c. The intent is to childproof outlets that are within children's reach to avoid any possibility of electrocution. An alternative is to locate them out of children's reach at least 4.3 ft. above floor level.
- No electrical outlet shall be located within 6.2 ft. of a water source, unless protected by an approved ground fault circuit interrupter.
- Computer cables should be encased in conduits or channels.
- There should not be any cables or wires in the center with enough slack to present the risk of strangulation if a child becomes entangled in them.
- Locate tamper-proof outlets 4 inches above the finished floor wherever counters are provided for adult use and at computer stations.
- Raised electrical boxes with sharp metal edges should not be installed in areas or passageways used by children.
- All hot pieces of equipment, including resistance-heating elements, should be screened from children's access.

Care should be taken in selecting and locating telephone sets and other devices, so that a child will not become entangled in the device's wires and cords. The same is true of window blinds with pull cords. Such wires, cords, and strings should be 4.5 ft. above the floor and out of children's reach.

10.11.2 Requirements

GSA recommends the following steps:

- Provide wall duplex outlets at intervals of approximately 13 ft. on center.
- Provide one duplex outlet per wall on walls less than 10 ft.
- Provide electrical power outlets for kitchen and laundry areas for a refrigerator, oven, range, garbage disposal, and washer/dryer.
- Install closed-ircuit TV cameras at all entrances and exits.
- Provide for a possible additional monitor location in the staff area.
- Coordinate requirements and provide for the installation of the following: electrically switched doors, security alarms, and intercom systems.
- Provide a power supply for a TV, a VCR, audiovisual equipment, telephones, and computers for staff and children's areas.
- Provide smoke detectors in each closet or enclosed space.

- Use the supplementary recommendations to the UFAS specifically addressing the special needs of children with disabilities. *The Recommendations for Accessibility Standards for Children's Environments*, January, 1992, prepared for The Architectural and Transportation Barriers Compliance Board address the needs of children with disabilities through age 12. Please refer to this publication for more in-depth information. Pertinent Standards for children with disabilities follow:
  - ✓ Passage width: The minimum clear width of aisles and corridors for children's wheelchairs is 3 ft., with passing space of 5 ft. provided at least every 200 ft.
  - ✓ Minimum door width: 2.7 ft. wide, with a 5- ft.-deep landing area in front of all ramps, gates, and doors. Doors through which evacuation cribs may pass to reach an exit should have a minimum width of 3 ft.
  - ✓ Forward and side reach: Maximum high reach should be 35 inches and minimum low reach should be 20 inches.
  - ✓ Slope and rise: 1:16 to l: 20 is preferred if space is available; the maximum should be 1:12.
  - ✓ Curbs should have cuts that comply with UFAS requirements.
  - ✓ Drinking fountain controls: They should be front or side operable , and the spout should be a maximum of 29.5 inches above the finished floor. Knee clearance space should be 16 inches above the finished floor, 18 inches deep, and 30 inches wide.
  - ✓ Children's toilet: At least one side bar and one grab bar should be provided in an accessible location. Follow the most recent requirements established by ADAAG.

Additional items:

- Flush controls should be mounted 20 to 30 inches above the finished floor on the wide side of toilet areas.
- Toilet paper dispensers should be mounted 14 inches above the finished floor within children's reach.
- The sink top should measure 22 inches above the finished floor with a minimum clearance of 19 inches for knee space.
- Faucets on children's lavatories may be fitted with sanitary and energy-conserving automatic controls, but the designer should ensure that these devices are acceptable to local licensing. Faucet controls mounted on the face or rim of a counter surface should be no more than 14 inches from the leading edge.
- Mirrors should be mounted over the sink with the bottom edge no higher than 29.5 inches above the finished floor. One full-length mirror should be provided with the bottom edge a maximum of 18 inches above the finished floor. All mirrors should be shatterproof.
- Paper towel dispensers should be mounted beside or close to the sinks. No dispensers of any kind should have serrated edges if they are within children's reach.

APPENDIX A:

COMMONLY USED TERMS FOR CENTER DEVELOPMENT PROJECTS

These terms, phrases, and definitions are used by architects, engineers, contractors, and managers in construction projects. Those involved in center development may need to be familiar with construction terminology.

Abate or abatement: To remove material.

Abstract of title: An outline history of the ownership of a parcel of land from the original grant, with changes in title, and with a statement of all mortgages, liens, or encumbrances affecting the property.

Acceptance test: A test conducted by a purchaser (or his or her agent) to determine if the material, devices, or equipment delivered conform to the purchase contract specifications or the product supplied by the vendor.

Access: A means of approach, e.g., a road, street, or walk.

Accessible: Allowing physical contact, as by means of an easily removable cover or door, or a part of the building structure or finish materials. Providing access to a fixture, appliance, or piece of equipment; removal of a cover, panel, plate, or similar obstruction may be required.

Accident: A sudden, unexpected event identified as to time and place.

Acre: A unit of land measurement equal to 43,560 sq. ft. or 4046.85 sq. m.; 1 sq. mile (2.59 sq. km.) equals 640 acres.

Activity: A task or item of work that must be performed in order to complete a project.

Activity duration: An estimation of the amount of time required to accomplish an activity.

ADD: On drawings, abbreviation for addendum.

Addendum: A supplement to bidding documents, issued prior to the submission of bids, for the purpose of clarifying, correcting, or adding to the specifications previously issued.

Addition: A floor or floors, a room, a wing, or other expansion to an existing building, or any new construction that increases the height or floor area of an existing building or adds to it, such as a porch or attached garage. An amount added to the contract sum by a change order.

Additional services: The professional services that may, upon the owner's request or approval, be rendered by the architect in addition to the basic services identified in the owner-architect agreement.

Additive alternate: An alternate bid in an addition to the same bidder's base bid. Same as alternate bid.

Administration of the construction contract: Same as construction phase-administration of the construction contract.

Administrative authority: The individual, official, board, department, council, or leader established and authorized by a political subdivision created by law to administer and enforce the provisions of the code.

Advertisement for bids: The published public notice soliciting bids for a construction project. Most frequently used to conform to legal requirements pertaining to projects to be constructed under public authority, and usually published in newspapers of general circulation in those districts from which the public funds are derived.

A/E: Abbreviation for architect-engineer.

Agency: A relationship by which one party, usually the agency, is empowered to enter into binding transactions affecting the legal rights of another party, usually called the principal, by, for example, entering into a contract or buying or selling property in the principle's name or on the principal's behalf. An administrative branch of government.

Agent: One who is empowered to enter into binding transactions on behalf of another.

Agreement: An arrangement indicating the intent of a contract, but not necessarily fulfilling all the enforceable provisions of it. A meeting of minds. A legally enforceable promise or promises between

two or among several persons. On a construction project, the document stating the essential terms of the construction contract that incorporates by reference the other contract documents.

Agreement form: A document setting forth in printed form the general provisions of an agreement, with spaces provided for inserting specific data relating to a particular project.

AIA: Abbreviation for American Institute of Architects.

All-in contract: Same as turn-key job.

Alterations: Remodeling.

Alternate bid: The amount stated in the bid to be added to or deducted from the amount of the base bid if the corresponding change in project scope or alternate materials and/or methods of construction is accepted.

American bond: Same as common bond.

Application for payment: The contractor's written request for payment of amount due for completed portions of the work. This may include, if the contract so provides, materials delivered and suitably stored pending their incorporation into the work.

Appraisal: An evaluation or estimate (preferably by a qualified professional appraiser) of the market or other value, cost, utility, or other attribute of land or other facility.

Approved: Referring to materials, devices, or construction accepted by the authority having jurisdiction, by reason of tests or investigations conducted by it or by an agency satisfactory to the authority, or by reason of accepted principles or tests by national authorities or technical or scientific organizations.

Approved equal: Materials, equipment, or methods approved by the architect for use in the work as acceptable as an equivalent in essential attributes to the material, equipment, or methods specified in the contract document.

Approving authority: The individual agency, board, department, or official established and authorized by a political subdivision created by law to administer and enforce specified requirements.

Arbitration: The binding resolution of disputes by one or more neutral persons, as a substitute for judicial proceedings; may be invoked only by agreement of the parties to the dispute. Such agreement may be arrived at before there is an actual dispute - for example, through a clause in a contract.

Architect: A person trained and experienced in the design of buildings and coordination and supervision of all aspects of the construction of buildings.

Architect-engineer: An individual or firm offering professional services as both architect and engineer; term generally used in government contracts, particularly those involving the federal government.

Architect's approval: The architect's written or imprinted acknowledgment that materials, equipment, or methods of construction are acceptable for use in the work.

Architect's scale: A scale having graduations along its edges so that scale drawings can be measured directly in feet.

Architectural: Pertaining to architecture, its features, characteristics, or details.

Architectural drawing: One of a number of drawings prepared by an architect for a construction project, e.g., plans, elevations, and details.

Architecture: The art and science of designing and building structures, or large groups of structures, in keeping with aesthetic and functional criteria.

Area method: A method of estimating the probable total construction cost by multiplying the adjusted gross floor area by a predetermined cost per unit of area.

Article: A subdivision of a document.

Assessed valuation: The value of a property as determined by a recognized legal entity for real estate tax purposes; often this valuation is less than the true market value of the property.

Assessment: A tax, charge, or levy on property.

Assessment ratio: Of a property, the ratio between its market value and its assessed value.

Assignment: The transfer of a legal right.

Attorney-in-fact: A person authorized to act for or on behalf of another person or organization, to the extent prescribed in a written instrument known as a power of attorney.

Authority: Same as administrative authority.

Authority having jurisdiction: A federal, state, or local entity having statutory authority. In many instances the delegated agent assumes the role of the authority with jurisdiction.

Base bid: The amount of money stated in the bid as the sum for which the bidder offers to perform the work, not including that work for which alternate bids are also submitted.

Base bid specifications: The specifications listing or describing only those materials, equipment, and methods of construction upon which the base bid must be predicated, exclusive of any alternate bids.

Base services: The services performed by an architect during the following five phases of a project: schematic design; design development; construction documents; bidding or negotiation; and contract administration.

Bid: An offer to perform the work described in a contract at a specified cost. A complete and properly signed proposal to do the work. Competition for a job based on lowest cost to do the work. Bids are generally cost specific, based on the cost of labor, materials, profit, and overhead. Bids are normally not negotiated and can not be changed once accepted by the owner. Bids are time sensitive and are generally good for 30 to 60 days after the bid opening.

Bid bond: A form of bid security executed by the bidder as principal and by a surety.

Bid date: The date established by the owner or the architect for the receipt of bids.

Bidder: One who submits a bid for a prime contract with the owner, as distinct from a sub-bidder who submits a bid to a prime bidder. A bidder is not a contractor on a specific project until a contract exists between him and the owner.

Bid documents: The advertisement or invitation to bid, instructions to bidders, the bid form, and the proposed contract documents, including any addenda issued prior to receipt of bids.

Bidding or negotiation phase: The fourth phase of the architect's basic service, during which competitive bids or negotiated proposals are sought as the basis for awarding a contract.

Bidding period: The calendar period beginning at the time of issuance of bidding requirements and contract documents and ending at the prescribed bid time.

Bidding requirements: Those documents providing information and establishing procedures and conditions for the submission of bids. They consist of the notice to bidders or advertisement for bids, instructions to bidders, invitation to bid, and sample forms.

Bid form: A form furnished to a bidder to be filled out, signed, and submitted as his bid.

Bid guarantee: Same as bid security.

Bid letting: Same as bid opening.

Bid opening: The opening and tabulation of bids submitted by the prescribed bid time and in conformity with the prescribed procedures.

Bid price: The sum stated in the bid for which the bidder offers to perform the work.

Bid security: The deposit of cash, certified check, cashier's check, bank draft, money order, or bid bond submitted with a bid and serving to guarantee to the owner that the bidder, if awarded the contract, will execute such contract in accordance with the bidding requirements and the contract documents.

Bid time: The date and hour established by the owner or the architect for the receipt of bids.

Bona fide bid: A bid submitted in good faith, complete and in prescribed form which meets the conditions of the bidding requirements and is properly signed by someone legally authorized to sign such bid.

Bond: A financial guarantee by a surety company that work will be completed as described in a contract.

Bonding capacity: An indication of a contractor's credit rating.

Bonus and penalty clause: A provision in a construction contract for payment of a bonus to the contractor for completing the work prior to a stipulated date, and a charge against the contractor for failure to complete the work by such stipulated date.

Boundary survey: A mathematically closed diagram of the completed peripheral boundary of a site, reflecting dimensions, compass bearings, and angles.

Builder's risk insurance: A specialized form of property insurance to cover work in the course of construction. Also property insurance.

Building area: The total area of the site that is covered by buildings as measured on a horizontal plane at ground level.

Building code: A collection of rules and regulations adopted by authorities having appropriate jurisdiction to control the design and construction of buildings, alteration, repair, quality of materials, use and occupancy, and related factors of the buildings within their jurisdiction.

Building inspector: A member of a building department, usually of a municipality, who inspects construction to determine if it conforms to both the requirements of the building code and the approved plans.

Building permit: A written authorization to an applicant for a specific project allowing him to proceed with construction; granted by the authorized agency, a tribe, or local municipality having jurisdiction after plans have been filed and reviewed.

Building rehabilitation: The returning of a building to a useful state by repair, alteration, and modification.

Building restoration: The accurate reestablishment of the form and details of a building, its artifacts, and the site on which it is located, usually as it appeared at a particular time.

Building restriction: Any one of a number of restrictions imposed on the construction of a building or the use of land. Also known as restrictive covenant.

Building services: The utilities and services supplied and distributed within a building generally related to the building environment.

Building site: Same as site.

Cash allowance: An amount established in the contract documents for inclusion in the contract sum to cover the cost of prescribed items not specified in detail, with provision that variations between such amount and the finally determined cost of the prescribed items will be reflected in change orders appropriately adjusting the contract sum.

Certificate for payment: A statement from the architect to the owner confirming the amount of money due to the contractor for work accomplished, or for materials and equipment suitably stored, or both.

Certificate of insurance: A memorandum issued by an authorized representative of an insurance company stating the types, amounts, and effective dates of insurance in force for a designated insured.

Certificate of occupancy: A document issued by governmental authority certifying that all or a designated portion of a building complies with the provisions of applicable statutes and regulations, and permitting occupancy for its designated use.

Certification: A declaration in writing that a particular product or service complies with a specification or stated criterion.

Change order: A written order to the contractor signed by the owner and the architect issued after the execution of the contract, authorizing a change in the work or an adjustment in the contract sum or the contract time as originally defined by the contract document. It may add to, subtract from, or vary the scope of work. A change order may be signed by the architect alone, provided he has written authority from the owner.

Changes in work: Changes ordered by the owner consisting of additions, deletions, or other revisions within the general scope of the contract, the contract sum and the contract time being adjusted accordingly.

Clerk of the works: Same as project representative.

Closed list of bidders: Same as invited bidders.

Closed specifications: Specifications stipulating the use of specific products or processes without provision for substitution. Same as base bid specifications.

Code: A legal instrument adopted within a political jurisdiction that prescribes the minimum acceptable levels of the design, construction, installation, and performance of materials, components, devices, items of equipment, appliances used in a building, or building system and/or subsystem.

Code of practice: A technical document setting forth standards of good construction for various materials and trades.

Community: People having common rights, privileges, or interests, or living in the same place under the same laws and regulations.

Compensation: Payment for services rendered or products or materials furnished or delivered.

Completed operations insurance: Liability insurance coverage for injuries to persons or damage to property occurring after an operation is completed, and attributed to that operation. The insurance does not apply to damage to the completed work itself.

Completion bond, construction bond, contract bond: The guarantee of a bonding company that a contractor will perform and deliver the work contracted free of all encumbrances and liens.

Completion date: In the contract documents, the date of substantial completion of the work.

Completion list: Same as inspection list.

Comprehensive general liability insurance: A broad form of liability insurance covering claims for bodily injury and property damage which combines under one policy coverage for all liability exposures on a blanket basis and automatically covers new and unknown hazards that may develop. It automatically includes contractual liability coverage for certain types of contracts.

Comprehensive services: Professional services performed by the architect in addition to the basic services in such related areas as project analysis, programming, land use studies, feasibility investigations, financing, construction management, and special consulting services.

Conditions of the bid: Conditions set forth in the instructions to bidders, the notice to bidders or advertisement for bids, the invitation to bidders, or other similar bid documents prescribing the conditions under which bids are to be prepared, executed, submitted, received, and accepted.

Conditions of the contract: Those portions of the contract documents which define, set forth, or relate to the following: contract terminology; the rights and responsibilities of the contracting parties and of others involved in the work; requirements for safety and compliance with laws and regulations; general procedures for the orderly prosecution and management of the work; payments to the contractor; and similar provisions of a general, non-technical nature.

Consent of surety: Written consent of the surety on a performance bond and/or labor and material payment bond to contract changes, such as change orders or reductions in the contractor's retainage, final payment, or waiving notification of contract changes.

Construction: All the on-site work done in building or altering structures, from land clearance through completion, including excavation, erection, and the assembly and installation of components and equipment.

Construction bond: A completion bond.

Construction budget: The sum established by the owner as available for construction of the project, or the highest acceptable bid.

Construction cost: The cost of all the construction portions of a project. This is generally based upon the sum of the construction contracts and other direct construction costs. It does not include the compensation paid to the architect and consultants, the cost of land, right-of-way, or other costs defined in the contract documents as being the responsibility of the owner.

Construction documents: The working drawings and specifications.

Construction documents phase: The third phase of the architect's basic services. In this phase the architect prepares from the approved design development documents, for approval by the owner, the working drawings and specifications and the necessary bidding information. In this phase the architect also assists the owner in the preparation of bidding forms, the conditions of the contract, and the form of agreement between the owner and the contractor.

Construction inspector: Same as project representative.

Construction loan: A loan to a builder for a short-term, financing of construction prior to permanent financing.

Construction management: The special management services performed by the architect or others during the construction phase of the project, under separate or special agreement with the owner. This is not part of the architect's basic services, but is an additional service sometimes included in the comprehensive services.

Construction phase - administration of the construction contract: The fifth and final phase of the architect's basic services, which includes the architect's general administration of the construction contract.

Construction survey: Same as engineering survey.

Consultant: An individual or organization engaged by the owner or the architect to render professional consulting services complementing or supplementing the architect's services.

Contingency allowance: A sum designated to cover unpredictable or unforeseen items of work, or changes subsequently required by the owner.

Contingency agreement: Any agreement under which the rights or obligations of a party are subject to the happening of stated contingency.

Contract: A legally enforceable promise or agreement between two or more persons.

Contract administration: The duties and responsibilities of the architect or consultant during the construction phase.

Contract bond: Same as completion bond.

Contract date: Same as date of agreement.

Contract documents: Those documents that comprise a contract, including: the owner-contractor agreement, conditions of the contract, plans and/or drawings, specifications, all addenda, modifications, and changes together with any other items stipulated as being specifically included.

Contracting officer: The person designated as the official representative of the federal government with specific authority to act on behalf of the government in connection with the project.

Contractor: One who undertakes responsibility for the performance of construction work, including the provision of labor and materials, in accordance with plans and specifications and under a contract specifying cost and a schedule for completion of the work; the person or organization responsible for performing the work and identified as such in the owner-contractor agreement.

Contractor's affidavit: A certified statement of the contractor, properly notarized, relating to payment of debts and claims, release of liens, or similar matters requiring specific evidence for the protection of the owner. Same as non-collusion affidavit.

Contractor's estimate: A forecast of construction cost, as opposed to a firm proposal, prepared by the contractor for a project or a portion of a project.

Contractor's liability insurance: Insurance purchased and maintained by the contractor to protect him from specified claims which may arise out of or result from his operations under the contract, whether such operations are by him, by any subcontractor, or by anyone directly or indirectly employed by either, or by anyone for whose acts the contractor or subcontractors may be liable.

Contractor's option: A provision of the contract documents under which the contractor may select certain specified materials, methods, or systems at his own option, without change in the contract sum.

Contractor's proposal: Same as bid.

Contract sum: The price stated in the owner-contractor agreement, which is the total amount payable by the owner to the contractor for the performance of the work under the contract document. This can be adjusted only by a signed change order.

Contract time: The period of time established in the contract document pursuant to other agreements between the parties, or by operation of law, within which the work must be completed.

Contractual liability: Liability assumed by a party under a contract by express language, implication, or operation of law. A "hold harmless" clause.

Cost breakdown: Same as schedule of values.

Cost-plus-fee agreement: An agreement under which the contractor or the architect is reimbursed for his direct and indirect costs and, in addition, is paid a fee for his services. The fee is usually stated as a stipulated sum or as a percentage of cost.

CPM: Abbreviation for critical path method.

Critical path method: CPM, a system of project planning, scheduling, and control which combines all relevant information into a single master plan, permitting the establishment of the optimum sequence and duration of operations. It contains the interrelation of all the efforts required to complete a construction project and includes the efforts critical to timely completion of the project.

Damages: Same as liquidated damages.

Date of agreement: The date stated on the face of the agreement. If no date is stated, it may be the date on which the agreement is actually signed, if this is recorded, or it may be the date established by the award. This date is also referred to as the contract date.

Date of commencement of the work: The date established in a notice to proceed, or, in the absence of such notice, the date of the agreement, or another date established by the concerned parties.

Date of substantial completion: The date certified by the architect when the work or a designated portion of the work is sufficiently complete in accordance with the contract documents so the owner may occupy or use the designated portion as intended.

Debt service: The periodic payment of a loan, including both accrued interest and a portion of the principal.

Deduction: The amount deducted from the contract sum by a change order.

Deductive alternate: A substitute bid resulting in a deduction from the bidder's base bid. This is the same as an alternate bid.

Deed: Any duly attested, written document executed under seal and delivered to effect a transfer, bond, or contract, such as a conveyance of real property or interest in the property.

Deed restriction: A limitation on the use of land, which is set forth in a deed conveying the restrictions.

Defective work: Work not complying with the contract requirements.

Demolition: The systematic destruction of a building, all or in part.

Department of Housing and Urban Development: Same as HUD.

Deposit for bidding documents: Monetary deposit required to obtain a set of construction documents and bidding requirements, customarily refunded to bona fide bidders on return of the documents in good condition within a specified time.

Design: To compose a plan for a building. The architectural concept of a building as represented by plans, elevations, renderings, and other drawings.

Design development phase: The second phase of the architect's basic services. In this phase the architect prepares the design development documents consisting of drawings and other documents to fix and describe the size and character of the entire project, including structural, mechanical, and electrical systems, materials, and such other essentials as may be appropriate. The architect also submits to the owner a further statement of probable construction cost.

Design documents: Same as structural design documents.

Detailed estimate of construction costs: A forecast of construction costs prepared on the basis of a detailed analysis of materials and labor for all items of work, as contrasted with an estimate based on current area, volume, or similar unit costs.

Developed area: An area of land upon which improvements have been made.

Development: A tract of previously undeveloped land that is subdivided and provided with all necessary utilities, such as roads, water, electricity, sewers, etc.

Direct personnel expense: Salaries and wages of principals and employees engaged on a project, assignment, or task, including mandatory and customary benefits.

Document deposit: Same as deposit for bidding documents.

Educational occupancy: The use of a building or buildings for gathering groups of six or more persons for purposes of instruction.

Eminent domain: The power or right of the nation or state to take private property for public use, usually with reasonable compensation to the owner.

Employer's liability insurance: Insurance protection for the employer against claims by employees for damages which arise out of injuries or diseases sustained in the course of their work and which are based on common law negligence rather than on liability under workmen's compensation acts.

Engineer: A person trained and experienced in the profession of engineering; a person licensed to practice the profession by the authority in the area.

Engineering survey: A survey conducted to obtain essential information for planning an engineering project or developing and estimating its cost.

Environmental design professionals: The professionals collectively responsible for the design of man's physical environment.

Environmental impact statement: A detailed analysis of the probable environmental consequences of proposed federal legislation, major federal actions, or large-scale construction making use of federal funds likely to significantly affect environmental quality; such a statement is required by the National Environmental Policy Act of 1969.

Estimate: Same as detailed estimate of construction costs. Same as statement of probable construction costs. Same as contractor's estimate.

Extended coverage insurance: Same as property insurance.

Extra services: Same as additional services.

Extra work: Any work not included in the contract documents, an extra.

Facility: The building(s), playground(s), parking area(s), and campus where the program or construction site is located.

Fee-plus-expenses agreement: Same as cost-plus-fee agreement.

Field representative: Same as project representative.

Field supervision: That portion of the architect's supervisory work done at the construction site.

Final acceptance: The owner's acceptance of a project from the contractor upon certification by the architect that it is complete and in accordance with the contract requirements. Final acceptance is confirmed by making final payment, unless otherwise stipulated at the time of making such payment.

Final completion: The completion of work and all contract requirements by the contractor.

Final inspection: The final review of the project by the architect prior to his issuance of the final certificate for payment.

Final payment: Payment made by the owner to the contractor of the entire unpaid balance of the contract sum as adjusted by change orders upon issuance by the architect of the final certificate for payment.

Fire and extended coverage insurance: Same as property insurance.

Fixed limit of construction cost: The maximum allowable cost of the construction work as established in the agreement between the owner and the architect. Same as construction budget.

Force account: A term used when work is ordered to be done without prior agreement as to lump-sum or unit-price cost thereof, and is to be billed for at the cost of labor, materials and equipment, insurance, taxes, etc., plus an agreed percentage for overhead and profit.

General conditions: That part of the contract document that sets forth many of the rights, responsibilities, and relationships of the parties involved. Same as conditions of the contract.

General contract: Under the single contract system, the contract between the owner and the contractor for construction of the entire work.

General contractor: The prime contractor who is responsible for most of the work at the construction site, including that performed by the subcontractors.

Generally accepted standard: A specification, code, rule, guide, or procedure in or related to the field of construction that is recognized and accepted as authoritative.

General requirements: The title of Division 1 of the American Institute of Architects' uniform system for construction specifications, data filing, and cost accounting.

Guarantee: A legally enforceable assurance of the quality or duration of a product or of work performed.

Guaranteed maximum cost: An amount estimated in an agreement between the owner and contractor as the maximum cost of performing specified work on the basis of cost of labor and materials plus overhead expense and profit.

Guaranty bond: Same as bid bond. Same as labor and material payment bond. Same as performance bond. Same as surety bond.

HUD: The abbreviation for Department of Housing and Urban Development.

Inspection list: A list of items of work to be completed or corrected by the contractor during or after completion of the work and during the warranty period.

Instructions to bidders: Instructions contained in the bidding requirements for preparing and submitting bids for a construction project. Same as notice to bidders.

Invitation to bid: A solicitation of competitive bids. The term usually is employed in connection with private construction projects, but also may be used for government projects, for the purchase of supplies or other goods, or in connection with the sale of property. Same as advertisement for bids.

Invited bidders: The bidders selected by the architect and the owner as the only ones from whom bids will be received.

Job: Same as project. Same as work.

Job captain: A member of the architect's staff normally responsible on a given project for the preparation of drawings and their coordination with other documents.

Job site: The site of the construction project.

Job superintendent: Same as superintendent.

Labor and material payment bond: A bond of the contractor in which a surety guarantees to the owner that the contractor will pay for labor and materials used in the performance of the contract. The claimants under the bond are those having direct contracts with the contractor or any subcontractor.

Landscape architect: A person trained and experienced in the design and development of landscapes and gardens.

Land survey: A survey of landed property establishing or reestablishing lengths and directions of boundary lines. Land boundaries are usually defined by ownership, commencing with the earliest owners through successive ownerships and partitions.

Latest event occurrence time: The latest point in time by which no further work must be done on an activity if the project is not to be delayed.

Latest start date: The latest possible point in time by which an activity must be started if the project is not to be delayed.

Letter of intent: A letter signifying an intention to enter into a formal agreement, usually setting forth the general terms of such agreement.

Liability insurance: Insurance that protects the insured against liability on account of injury to the person or property of another.

Licensed architect: Same as architect.

Licensed contractor: A person or organization certified by governmental authority, where required by law, to engage in construction contracting.

Licensed engineer: Same as professional engineer.

Lien: A right enforceable against specific property to secure payment of an obligation.

Lien waiver: Same as waiver of lien.

Life-cycle cost: The cost of a building or equipment based not only on the initial expenditure but also on its maintenance and operating cost over its entire lifetime.

Liquidated damages: A sum specified in a contract whereby damages in the event of breach are to be determined. In a construction contract, liquidated damages usually are specified as a fixed sum per day for failure to complete the work within a specified time.

Listed: Equipment, materials, or products included in a list published by an organization acceptable to the authority having jurisdiction.

Loss-of-use insurance: Insurance protecting against financial loss during the time required to repair or replace property damaged or destroyed by an insured peril.

Lowest responsible bidder, lowest qualified bidder: The bidder who submits the lowest bona fide bid and is considered to be fully responsible and qualified to perform the work for which the bid is submitted.

Lowest responsive bid: The lowest bid that is responsive to and complies with the bidding requirements.

Lump-sum agreement: Same as stipulated sum agreement.

Main contractor: Same as general contractor.

Maintenance bond: A bond that provides a guarantee to an owner that the contractor will rectify defects in workmanship or materials reported to the contractor within a specified time period following final acceptance of the work under contract.

Measured drawing: An architectural drawing of an existing structure, drawn to scale.

Mechanic's lien: A lien on privately owned real property created by state statute in favor of persons supplying labor or materials for a building or structure or improvements thereof, generally for the value of the labor or materials supplied by them.

Model code: A proposed building code that is written and published by building official associations available for adoption by states, counties, and municipalities.

Modification: A written amendment to the contract document signed by both parties. A change order. A written order for a minor change in the work issued by the architect.

Modular construction: Construction in which a selected unit or module, such as a box or other sub-component, is used repeatedly in the aggregate construction.

Mortgage: A loan in which property is used as security for the debt.

Mortgagee: The lender from whom a mortgage is obtained.

Mortgage lien: A charge against property as security for the payment of a loan.

Mortgagor: The borrower who obtains a mortgage.

Negligence: Failure to exercise a degree of care that a reasonable and prudent person would exercise under the same circumstances.

Negotiation phase: Same as bidding or negotiation phase.

Noncollusion affidavit: A notarized statement by a bidder that he has prepared his bid without collusion of any kind.

Nonconforming work: Work that does not fulfill the requirement of the contract documents.

Notice to bidders: A notice contained in the bidding requirements informing prospective bidders of the opportunity to submit bids on a project and setting forth the procedures for doing so.

Notice to proceed: Written communication issued by the owner to the contractor authorizing him to proceed with the work and establishing the date of commencement of the work.

Observation of the work: A function of the architect in the construction phase, during his periodic visits to the site, to familiarize himself generally with the progress and quality of the work and to determine in general if the work is proceeding in accordance with the contract documents.

Occupancy permit: Same as certificate of occupancy.

Opening of bids: Same as bid opening.

Ordinance: A law or rule adopted by a local governmental authority.

Orientation: The placement of a structure on a site with regard to local conditions of sunlight, wind, and drainage.

OSHA: Abbreviation for Occupational Safety and Health Administration, Department of Labor.

Over design: As applied to structural design, a design based on requirements higher than service demands, usually as a means of compensating for unknown or anticipated deficiencies.

Owner: The architect's client and party to the owner-architect agreement.

Owner-architect agreement: A contract between the architect and the client for professional services.

Owner-contractor agreement: A contract between the owner and contractor for a construction project.

Owner's inspector: A person employed by the owner to inspect construction in the owner's behalf.

Owner's liability insurance: Insurance that protects the owner against claims arising from his ownership of property and that may be extended to cover claims arising from operations of others under the construction contract.

Package dealer: A person or organization assuming responsibility under a single contract for the design and construction of a project to meet the specific requirements of another.

Parcel: Of land, a contiguous land area that is considered as a unit, that is subject to a single ownership, and that is legally recorded as a single piece.

Partial occupancy: Occupancy by the owner of a portion of a project prior to final completion.

Partial payment: A progress payment.

Payment request: Same as application for payment.

P.E.: Abbreviation for professional engineer.

Penal sum: The amount named in a contract or bond as the damage or penalty to be paid by a signatory in the event he fails to perform his contractual obligations or does not do so within the time prescribed by the contract.

Penalty-and-bonus clause: Same as bonus-and penalty clause.

Penalty clause: A contract provision setting forth the damages a party must pay in the event of breach. If such a clause is regarded by the court as too harsh to be regarded as a fair estimate of probable damages, it will normally be held invalid. Same as liquidated damages.

Percentage agreement: An agreement for professional services in which the compensation is based upon a percentage of the construction cost.

Percentage fee: Compensation based on a percentage of construction cost. Same as fee.

Performance bond: A bond of the contractor in which a surety guarantees to the owner that the work will be performed in accordance with the contract documents. This is frequently combined with the labor and materials payment bond, except where prohibited by statute.

Permit: A document issued by a governmental authority having jurisdiction to authorize specific work by the applicant.

Personal injury: In insurance terminology, injury or damage to the character or reputation of a person, as well as bodily injury. Person injury insurance usually covers such situations. Same as bodily injury.

Personal property: Movable and other property not classified as real property.

PERT: Acronym for project evaluation and review technique.

PERT schedule: A PERT chart of the activities and events anticipated in a work process. Same as critical path method (CPM).

Planning: The process of studying the layout of spaces within buildings and of buildings and other facilities or installations in open spaces in order to develop the general scheme of a building or group of buildings.

Post-completion services: Additional services rendered after issuance of the final certificate for payment, such as consultation regarding maintenance, processes, systems, etc.

Power of attorney: An instrument authorizing another to act as one's agent. Same as attorney-in-fact.

Preliminary drawings: Drawings prepared during the early stages of the design of a project.

Preliminary estimate: same as statement of probable construction costs.

Premises: Land and/or its appurtenances.

Pre-bid conference or pre-bid walk-through: A meeting of any interested bidder, at the job site, giving an opportunity to review the project and discuss any unclear design or programming issues.

Pre-qualification of prospective bidders: The process of investigating the qualifications of prospective bidders on the basis of their competence, integrity, and responsibility relative to the contemplated project.

Prime contract: A contract between the owner and contractor for construction of a project or a portion of a project.

Prime contractor: The contractor on a project having a contract directly with the owner.

Prime professional: Any person or firm having a contract directly with the owner for professional services.

Principal: One on whose behalf or in whose name binding transactions may be entered into by another, usually called the agent.

Production drawings: Same as working drawings.

Professional adviser: An architect engaged by the owner to direct an authorized design competition for the selection of an architect.

Professional engineer: A designation reserved, usually by law, for a person or organization professionally qualified and duly licensed to perform engineering services such as structural, mechanical, electrical, sanitary, and civil.

Professional liability insurance: Insurance designed to insure an architect or engineer against claims for damages resulting from alleged professional negligence. Also known as errors and omissions insurance.

Professional's practice: The practice of an environmental design professional in which services are rendered within the framework of recognized professional ethics and standards.

Program: A statement prepared by or for an owner, with or without an architect's assistance, setting forth the conditions and objectives for a building project, including its general purpose and detailed requirements, such as a complete list of the rooms required, their sizes, and special facilities.

Program evaluation and review technique (PERT): A management control technique applied to building construction. It explains what must be done to complete construction by a given date.

Progress chart: A chart prepared by a contractor and updated monthly. The principal trades involved in the project are tabulated vertically and the scheduled construction time is shown horizontally.

Progress payment: A partial payment made during progress of the work for work completed and/or materials suitably stored.

Progress schedule: A diagram, graph, or other pictorial or written schedule showing proposed and actual times of starting and completing the various work elements.

Project: A construction undertaking, composed of one or more buildings, and site improvements planned and executed in a fixed time period.

Project budget: The sum established by the owner as available for the entire project, including the construction budget, land costs, equipment costs, financing costs, compensation of professional services, contingency costs, and other similar established or estimated costs.

Project cost: The total cost of a project, including professional compensation, land costs, furnishings and equipment, financing, and other changes as well as the construction cost.

Project manager: A third party consultant or employee of the owner who works for the owner and coordinates the activities of the project. Assists with the development of specific strategies of the project (including bidding and contracting), establishing time frames and benchmarks for the project, hiring other professional services, reviewing plans and drawings and making recommendations to the owners, monitoring the budget in all phases of the project, working with all consultants, monitoring the day-to-day work progress of the contractor, performing close-out activities, and preparing for occupancy.

Project manual: The manual prepared by the architect for a project, including the bidding requirements, conditions of the contract, and technical specifications.

Project representative: The architect's representative at the project site who assists in the administration of the construction contract.

Property: Any asset, real or personal.

Property damage insurance: Part of general liability insurance covering injury to or destruction of tangible property, including loss of use of the property resulting from the damage.

Property line: A recorded boundary of a plot.

Property survey: Same as boundary survey.

Proposal: A document prepared by an applicant for a contract and used to evaluate the professional capabilities of a business, agency, or individual against a set of criteria that may include previous working experience. The content of the proposal may be weighted on a numerical scale using a set of questions that allows the person or persons choosing the contractor to determine the best business, agency, or individual to hire for a specific job. Preference can be given to local or in-state businesses. The proposal also includes the qualifications of the lead professional and team that will be working on the project. Normally, a proposal does not include the cost of services. Cost is generally a negotiated amount after the competing proposals have been evaluated and ranked.

Proposal form: Same as bid form.

Public liability insurance: Insurance covering liability of the insured for negligent acts resulting in bodily injury, disease, or death of other than employees of the insured, and/or property damage.

Quality assurance: The inspection, testing, and other relevant action taken to ensure that the desired level of quality is in accordance with the applicable standards or specifications for the product or work.

Quality control: The inspection, analysis, and other relevant action taken to provide control over what is being done, manufactured, or fabricated, so that a desired level of quality is achieved and maintained.

Quality survey: A detailed analysis and listing of all materials and equipment necessary to construct a project.

Quitclaim deed: A written instrument conveying the seller's interest in a property. It makes no warranties or representations as to the nature of that interest or to the absence of any limitations or restrictions on the property, or even that the seller has any right to the property at all.

Quotation: A price quoted by a contractor, subcontractor, material supplier, or vendor to furnish materials, labor, or both.

Real estate: Property in the form of land and all its appurtenances, such as buildings.

Real property: Land, everything growing on it, and all improvements made to it.

Realty Officer: An employee who assists the government in realty issues including, but not limited to, disputes, developments, and assignments.

Record drawings: Construction drawings revised to show significant changes made during the construction process, usually based on marked-up prints, drawings, and other data furnished by the contractor to the architect.

Record sheet: On a construction job, a sheet or printed form for keeping a record of materials delivered, number of men working at the various trades, hours worked, and other information.

Regulation: Any rule prescribing permitted or forbidden conduct, whether found in legislation or in the actions of an administrative agency or federal agency.

Release of lien: An instrument executed by one supplying labor, materials, or professional services on a project that releases his mechanic's lien against the project property. Same as a mechanic's lien.

Render: To create a mechanical drawing, including elevation and an indication of shades and shadows.

Resident engineer: A person representing the owner's interests at the project site during the construction phase. This term is frequently used on projects in which a governmental agency is involved.

Resident inspector: Same as owner's inspector.

Responsible bidder: Same as lowest responsible bidder.

Restricted list of bidders: Same as invited bidders.

Restriction: On land, an encumbrance limiting its use.

Restrictive covenant: An agreement between two or more individuals, incorporated within a deed that stipulates how land may be used.

Retainage: A sum withheld from progress payments to the contractor in accordance with the terms of the owner-contractor agreement.

Retention: The withholding of a portion (usually 10 percent) of a periodic payment to a contractor, by prior agreement, for work completed. The retention is held in escrow for a stipulated time period after the acceptance of the completed work by the architect and owner.

Retention money: Same as retention.

Right-of-way: Any strip of land, including surface and overhead or underground space, that is granted by deed or easement for the construction and maintenance of specified linear elements, such as power and telephone lines.

Satisfaction: Cancellation of an encumbrance on real property, usually by payment of the secured debt.

Schedule: A detailed tabulation of components, items, or parts to be furnished.

Schedules of values: A statement furnished by the contractor to the architect reflecting the portions of the contract sum allotted to the work and used as the basis for reviewing the contractor's application for a progress payment.

Schematic design phase: The first phase of the architect's basic services. In this phase, the architect consults with the owner to ascertain the requirements of the project and prepares schematic design studies consisting of drawings and other documents illustrating the scale and relationship of the project components for approval by the owner. The architect also submits to the owner a statement of probable construction costs.

Schematic drawing: Same as schematic design phase.

Scheme: The basic arrangement for an architectural composition. Primary sketch for a design.

Selected bidder: The bidder selected by the owner for discussion relative to the possible award of the construction contract.

Selected list of bidders: Same as invited bidders.

Setback: The minimum distance between a reference line and a building, or a portion thereof.

Shop drawings: Drawings, diagrams, illustrations, schedules, performances charts, brochures, and other data prepared by the contractor or any subcontractor, manufacturer, supplier, or distributor, that illustrate how specific portions of the work shall be fabricated and/or installed.

Single contract: A contract for construction of a project under which a single prime contractor is responsible for all the work.

Site: An area or plot of ground with defined limits on which a building or project is located or proposed to be located.

Site investigation: An examination of the subsoil and surface of a site to obtain complete information necessary for the design of foundations and structures on them.

Site plan: A plan of a construction site showing the position and dimensions of the building to be erected and the dimensions and contour of the lot.

Special conditions: A section of the conditions of the contract, other than general conditions and supplemental conditions, which may be prepared for a particular project. This is the same as conditions of the contract.

Special hazards insurance: Additional perils insurance to be included in property insurance.

Specifications: A written document contained in the project manual describing in detail the scope of work, materials to be used, methods of installation, technical nature of materials, equipment construction systems, and standards and quality of workmanship for a parcel of work to be place under contract. This is usually used in conjunction with working drawings in building construction.

Standard: A document prepared by a recognized standard-setting organization that prescribes methods and materials for the safe use and consistent performance of specific technologies.

Standards of professional practice: Statements of ethical principles promulgated by professional societies to guide their members in the conduct of professional practice.

Statement of probable construction cost: Cost forecasts prepared by the architect during the schematic design, design development, and construction phases of basic services for the guidance of the owner.

Statute of limitations: A statute specifying the period of time within which legal action must be brought for alleged damage or injury. The length of the period varies from state to state and depends upon the type of legal action.

Statutory bond: A bond, the form and contents of which are prescribed by statute.

Stipulated sum agreement: A contract in which a specific amount is set forth as the total payment for performance of the contract.

Structural design documents: The plans, design details, and job specifications prepared by the structural designer.

Structural drawings: Drawings, usually prepared by a structural engineer, of the design, and working drawings of a building's structure.

Structural engineering: That branch of engineering concerned with the design and construction of structures to withstand physical forces.

Sub-bidder: One who offers to a bidder on a prime contract a proposal to provide materials and/or labor.

Subcontract: An agreement between a prime or general contractor and a subcontractor for the execution of a portion of the contractual obligation of the prime contractor to the owner.

Subcontractor: A person or organization who has a direct contract with a prime contractor to perform a portion of the work at the site.

Subcontractor bond: A performance bond given by a subcontractor that guarantees performance of a contract and the payment of bills for labor and materials.

Substantial completion: Same as date of substantial completion.

Substitutions: Materials or processes offered in lieu of, and as being equivalent to, specified materials or processes.

Successful bidder: Same as selected bidder.

Superintendent: At a construction site, the contractor's representative who is responsible for continuous field supervision, coordination, and completion of the work, and, unless another person is designated in writing by the contractor, is responsible to the owner and the architect for any accidents.

Supervision: The observation and inspection of construction work to ensure conformity with the contract documents. Also, direction of work by the contractor's personnel.

Supplemental or supplementary conditions: Part of the contract documents that supplement and may modify provisions of the general conditions.

Surety: A person or organization who, for a consideration, promises in writing to make good the debt or default of another.

Surety bond: A legal instrument under which one party agrees to answer to another party for the debt, default, or failure to perform by a third party.

Survey: A boundary and/or topographic mapping of a site.

Tender: A proposal or bid for a contract to perform work. It is completed by a contractor and gives the estimated price and time to complete a contract. A form is often used.

Terminal expense: An expense incurred in connection with the termination of a contract.

Time: Time limits or period stated in the contract.

Timely completion: Completion of the work or a designated portion of the work on or before the date required.

Time of completion: The date established in the contract, by name or by number of days, for substantial completion of the work.

Title insurance: Insurance, offered by a company, that the title to property is clear or that it may be cleared by curing specified defects.

Title search: An inquiry into the historical ownership record of a property.

Topographical survey: The configuration of a surface, including its relief and the locations of its natural and man-made features.

Trade: A person's occupation or craft, usually involving manual skill.

Turn-key job: A job in which the contractor completes all work and furnishings of a building so that it is ready for immediate use.

Variation order: Same as change order.

Visual inspection: Inspection by examination without the use of testing apparatus.

Waiver of lien: An instrument by which a person or organization who has or may have a right of mechanic's lien against the property of another relinquishes such right. Same as release of lien.

Work: All labor necessary to produce the construction required by the contract document.

Working drawings: Drawings intended for use by a contractor, subcontractor, or fabricator, that form part of the contract documents for a building project.

Workman's compensation insurance: Insurance covering liability of an employer to his employees for compensation and other benefits required by workmen's compensation laws.

Zoning: The control by a municipality of the use of land and buildings, the height and bulk of the buildings, the density of population, the relation of a lot's building coverage to open space, size and location of yards and setbacks, and the provision of any ancillary facilities.

Zoning permit: A permit issued by appropriate governmental authority authorizing land use for a specific purpose.

APPENDIX B:

PERTINENT HEAD START PROGRAM PERFORMANCE STANDARDS

The following Head Start Program Performance Standards, 45 CFR Part 1304, are relevant to facilities. Those cited apply to fixed, built-in environments. A summary of the official guidance is included where applicable. Where appropriate, relevant sections of this guide are cited.

Performance Standard 1304.21(a)(5)(i): (5) In center-based settings, grantee and delegate agencies must promote each child's physical development by:

(1) Providing sufficient time, indoor and outdoor space, equipment, materials and adult guidance for active play and movement that support the development of gross motor skills.

Performance Standard 1304.22(e)(6): Potties that are utilized in a center-based program must be emptied into the toilet and cleaned and disinfected after each use in a utility sink used for this purpose.

Performance Standard 1304.53(a)(1): (a) Head Start physical environment and facilities. (1) Grantee and delegate agencies must provide a physical environment and facilities conductive to learning and reflective of the different stages of development of each child. (See Section 4.1.2 of this guide.)

Guidance: There should be developmentally appropriate indoor and outdoor environments that are safe, clean, attractive, and spacious.

Indoor environments include: Floor coverings and soft elements such as rugs and cushions; an open area on the floor allowing for the safe movement of infants and toddlers; a configuration of existing space that promotes individual and group activities; low, open shelves, which allow children to see and to select their own materials.

Outdoor environments include: A variety of surfaces, such as soil or sand for digging; hills; flat, grassy, and hard areas for wheeled toys; areas of sunlight as well as shade or portable shade equipment; a variety of equipment for riding, climbing, balancing, and digging; areas for individual and small group play.

Performance Standard 1304.53(a)(2): Grantee and delegate agencies must provide appropriate space for the conduct of all program activities.

Guidance: There should be doors, gates, counters, and walls to keep food preparation areas separate from other areas; cribs and cots for infants and toddlers are kept at least 3 feet apart. There should be space for children who become ill during the day and cannot be sent home; there is sufficient space for program activities and support functions, including office work, the storage of staff belongings, food preparation, janitorial services, and children and parent activities.

Performance Standard 1304.53(a)(3): The center space provided by the grantee and delegate agencies must be organized into functional areas that can be recognized by the children and that allow for individual activities and social interactions.

Guidance: Classrooms should be divided into functional areas, using child-sized, age-appropriate shelving; low walls; large pillows; mats; or platforms to separate the different areas. Space for preschool children and older toddlers is arranged to facilitate a variety of large group, small group, and

individual program activities. Active or noisy areas are separated from inactive or quiet spaces. Activity areas are near necessary resources. (For instance, art areas are near water.)

Indoor traffic patterns should keep preschool children from running, yet enable them to move easily between areas.

Playgrounds should be laid out to ensure clearance space from walkways, buildings, and other structures, and to avoid crowding in any one area. Outdoor separate space should be provided for each type of activity - throwing or kicking balls, climbing hills, digging, and using stationary playground equipment.

Performance Standard 1304.53(a)(4): The indoor and outdoor space in Early Head Start or Head Start centers in use by mobile infants and toddlers must be separated from general walkways and from areas in use by preschoolers.

Guidance: Mobile infants and toddlers must be kept away from surfaces and equipment that may injure them. Carpeting should be well padded, secure, and clean.

Performance Standard 1304.53(a)(5): Centers must have at least 35 square feet of usable indoor space per child available for the care and use of children (i.e., exclusive of bathrooms, halls, kitchen, staff rooms, and storage places) and at least 75 square feet of usable outdoor play space per child. (See Sections 5.3.1 and 7.2.3 of this guide.)

Guidance: Indoors: cribs and cots should be at least 3 feet apart. If less than 75 square feet of accessible outdoor space is available per child, a large indoor activity room meeting the 75-square-foot room requirement-per-child should be used. This indoor space should accommodate activities performed outdoors. These interior spaces must be ventilated with fresh air when windows cannot be opened.

An adjoining or nearby school yard, park, or playground that is safe, clean, and provides drinking water and toilet facilities may be provided in lieu of on-site outdoor play area.

Performance Standard 1304.53(a)(6): Facilities owned or operated by Early Head Start and Head Start grantee or delegate agencies must meet the licensing requirements of 45 CFR 1306.30. (See Section 4.3 of this guide.)

Performance Standard 1304.53(a)(7): Grantee and delegate agencies must provide for the maintenance, repair, safety, and security of all Early Head Start and Head Start facilities, materials, and equipment.

Guidance: Outdoor play areas must be free of broken glass, stones, sharp objects, standing water, poisonous plants, brush or high grass, and ice and snow accumulations. There should be a system to monitor entry into the building. Staff should check the facility regularly for damage or other conditions that present hazard to children (e.g., plumbing, electrical, structural problems). Leases and rental agreements should specify the landlord's responsibilities for maintenance and repairs. A facility that is unsafe, unclean, or otherwise in disrepair will be suspended from use.

Performance Standard 1304.53(a)(8): Grantee and delegate agencies must provide a center-based environment free of toxins, such as cigarette smoke, lead, pesticides, herbicides, and other air pollutants as well as soil and water contaminants.

Guidance: The facility must work with health officials to determine inspections that are conducted for environmental hazards such as asbestos, radon, and formaldehyde. Inspection and removal of any environmental or health hazards should be by certified or licensed contractors.

Performance Standard 1304.53(a)(9): Outdoor play areas at center-based programs must be arranged so as to prevent any child from leaving the premises and getting into unsafe and unsupervised areas. En-route to play areas, children must not be exposed to vehicular traffic without supervision.

Guidance: Streets crossed should be clearly marked by traffic lights and have marked crosswalks. Fences or other physical barriers should be installed to separate the outdoor play areas from vehicular traffic and other dangers. Fences and other physical barriers should be high enough and constructed well enough to prevent children from exiting the area. When a rooftop is used as a play area, it should be enclosed with a fence that is high enough to prevent falls and constructed of materials that can prevent children from climbing the fence. The rooftop must have an approved fire escape. Bus loading and unloading areas must be safely configured.

Performance Standard 1304.53(a)(10): (10)Grantee and delegate agencies must conduct a safety inspection, at least annually, to ensure that each facility's space, light, ventilation, heat, and other physical arrangements are consistent with the health, safety, and developmental needs of children. (See Section 4.1.8 of this guide.)

Guidance: Fire prevention measures (e.g., absence of flammable materials, presence of currently inspected and fully charged fire extinguishers, smoke detectors with working batteries, exits, and evacuation routes) must be in use. Painted surfaces must be lead-free. Inspections should be conducted of playground equipment and surfaces, electrical outlets, water supply, toilets and handwashing facilities, diaper and changing areas, ventilation and air quality, and sewage and waste disposal systems. Adaptations to the facility must comply with the Americans with Disabilities Act.

Performance Standard 1304.53(a)(10)(i): In climates where such systems are necessary, there is a safe and effective heating and cooling system that is insulated to protect children and staff from potential burns.

Guidance: Safe cooling and heating systems should be checked by staff or by other appropriate professionals to ensure that tribal, state, and local laws are followed. Heating and cooling units should be vented properly. Radiators, hot water pipes, and similar equipment should be screened or insulated to prevent burns and other injuries. Heating units, including baseboard heaters hotter than 110 degrees Fahrenheit, should be inaccessible to children. Electric space heaters that are UL-approved should be placed in locations inaccessible to children and at least 3 feet from curtains, papers, and furniture. These heaters also should have protective coverings to prevent injury. Portable open-flame and kerosene space heaters and portable gas stoves may not be used. Electric fans must be inaccessible to children. Heating and ventilating equipment should be professionally inspected annually, or immediately after there is a concern or malfunction. An inspection should verify that the equipment is properly installed, cleaned, and maintained.

Performance Standard 1304.53(a)(10)(ii): No highly flammable furnishings, decorations, or materials that emit highly toxic fumes when burned are used.

Guidance: Agencies are to follow state, tribal, and local licensing regulations and the guidelines of the U.S. Consumer Product Safety Commission regarding the flammability of materials, furnishings, and equipment.

Performance Standard 1304.53(a)(10)(iii): - Flammable and other dangerous materials and potential poisons are stored in locked cabinets or storage facilities separate from stored medications and food and are accessible only by authorized persons. All medications including those required for staff and volunteers are labeled, stored under lock and key, refrigerated if necessary, and kept out of the reach of children.

Guidance: Cleaning materials, detergents, aerosol cans, pesticides, medications, poisons, chemicals used in lawn-care treatments, and other toxic materials should be stored in their original containers and entirely separated from food and out of children's reach. Medications must be under lock and key, have child-protective caps, labels, and be stored away from food at the proper temperature.

Performance Standard 1304.53(a)(10)(iv): - Rooms are well lit and provide emergency lighting in the case of power failure.

Guidance: Test emergency lighting regularly. Light fixtures should contain shielded or shatterproof bulbs. The facility should not have sodium or mercury vapor lamps since they produce toxic fumes. In case of power failure, electrical and circuit breaker panels are to be readily accessible to authorized adults and the circuits clearly labeled. Lights used in places where infants look at the ceiling should not be unnecessarily harsh, bright, or glaring.

Performance Standard 1304.53(a)(10)(v) - (v): Approved working fire extinguishers are readily available.

Guidance: Agencies should support fire prevention by:

- Determining the size, type, placement, and number of fire extinguishers to be installed by consulting with the fire marshal or an insurance company fire loss prevention representative, and by examining local building and fire codes.
- Placing fire extinguishers in accessible locations and making staff aware of their precise locations.
- Providing staff with training on how to use fire extinguishers and posting instructions for their use on or near the extinguishers themselves.
- Servicing fire extinguishers annually and tagging them with the service date.

Performance Standard 1304.53(a)(10)(vi): An appropriate number of smoke detectors are installed and tested regularly.

Guidance: Smoke detectors are to be placed throughout the facility, no more than 40 feet apart, and in accordance with the manufacturer's instructions. Smoke detectors and evacuation procedures are to be tested monthly. Smoke detectors are to be replaced annually. The facility should comply with all smoke detection requirements in state, tribal, or local building codes and should conduct installation and testing of the fire alarm system as prescribed by state, tribal, or local licensing requirements.

Performance Standard 1304.53(a)(10)(vii): Exits are clearly visible and evacuation routes are clearly marked and posted so that the path to safety outside is unmistakable.

Guidance: Agencies should ensure the safe evacuation from the facility by following the recommendations of the National Fire protection Agency (NFPA) including the suggestion that exits have a minimum width of 36 inches. Exits must be unobstructed and not padlocked or chained shut during program hours. All exit doors are to operate easily and open outward. Entrance and exit routes should be examined and approved by local fire authorities and clearly marked. Monthly fire and evacuation drills should be conducted. The facility should have enough evacuation cribs and strollers available to evacuate infants, toddlers, and children with disabilities who cannot walk on their own, and smooth ramps on which evacuation cribs and strollers can be wheeled. There are to be at least two exits on each floor of a building, each of which leads to an open space at ground level.

Performance Standard 1304.53(a)(10)(viii): Indoor and outdoor premises are cleaned daily and kept free of undesirable and hazardous materials and conditions.

Guidance: There are to be outward-opening, self-closing doors, closed windows, screening and curtains, and any other effective means to prevent entrance of flies or other airborne insects. Basement windows used for ventilation and all other openings to a basement or cellar should not permit the entry of rodents. Each foundation, floor, wall, ceiling, roof, window, exterior door, basement, cellar hatchway or other opening is to be free from cracks and holes. Trash and garbage containers are to be placed in designated areas. Play areas should not provide shelter or a breeding ground for pests.

Performance Standard 1304.53(a)(10)(ix): Paint coatings on both interior and exterior premises used for the care of children do not contain hazardous quantities of lead.

Guidance: Qualified professional assistance should be obtained for testing surfaces (exterior and Interior) painted prior to 1978 for lead levels of 0.06 percent or more. If professional inspection reveals paint with excessive lead levels, agencies are to obtain qualified professional assistance in removing lead-contaminated paint, or the area is to be refinished with lead-free, encapsulant paint or other locally approved, nontoxic materials. Sanding, scraping, or burning of high lead surfaces should be strictly prohibited, and the agency is to ensure that no paint containing hazardous quantities is ever used. Products containing lead are to be replaced immediately.

Agencies with concerns about lead paint should seek the assistance of the Lead Poisoning Prevention Program at the Centers for Disease Control and Prevention in Atlanta, Georgia, or Environmental Protection Agency (EPA) or Housing and Urban Development (HUD) authorities.

Performance Standard 1304.53(a)(10)(x): The selection, layout, and maintenance of playground equipment and surfaces minimize the possibility of injury to children.

Guidance: Playgrounds and playground equipment is to be designed, installed, inspected, and maintained with the children's safety in mind so that equipment does not pose the threat of serious falls and will not pinch, crush, or entrap the head or any part of a child's body or clothing. All playground equipment is to be installed in strict accordance with the manufacturer's instructions over shock-absorbing materials, and equipment is to be securely anchored to the ground. The agency is to consult the U.S. Consumer Product Safety Commission to insure proper surfaces surrounding playground equipment and to verify if any recalls of equipment have occurred. Equipment is to be situated so that the clearance space allocated to one piece of equipment does not encroach on that allocated for another piece of equipment. Moving equipment, such as swings, is to be located toward the edge or corner of a play area, or the space is to be designed in another way to protect children from running into the path of the equipment.

Performance Standard 1304.53(a)(10)(xi): - Electrical outlets accessible to children prevent shock through the use of child-resistant covers, the installation of child protection outlets, or the use of safety plugs.

Guidance: Agencies are to prevent shocks by insuring that all electrical equipment and appliances are properly grounded, and that all electrical cords are in good condition and placed out of the reach of children. All electrical outlets are to be covered with child-resistant safety covers, unless childproof electrical outlets are installed.

Performance Standard 1304.53(a)(10)(xii): Windows and glass doors are constructed, adapted, or adjusted to prevent injury to children.

Guidance: Windows and glass door panels in rooms used by children are to have safety guards (e.g., rails or mesh), or are to be constructed of safety-grade glass or polymer. Windows that can be opened are to be equipped with childproof devices that do not block natural light, and screened when open so children cannot pass through the windows or become stuck in any way. All glass doors are to be marked with opaque tape or other materials..

Performance Standard 1304.53(a)(10)(xiii): Only sources of water approved by the local or state health authority are used.

Guidance: Agencies are to ensure that their facilities are supplied with piped running water that is under correct pressure and from a source approved by the Environmental Protection Agency (EPA) or by the state, tribal, or local health authority, and that provides an adequate water supply to every available fixture. When water is supplied by well or other private source, the agency is to ensure that it meets all applicable federal, state, tribal, and local health standards, and that it is approved by the local health department or its designee. The agency is to keep documentation of water supply approval on file.

Performance Standard 1304.53(a)(10)(xiv): Toilets and hand-washing facilities are adequate, clean, in good repair, and easily reached by children. Toileting and diapering areas must be separated from areas used for cooking, eating, or children's activities.

Guidance: Agencies are to ensure that the following guidelines are met:

- Accessible toilets and sinks are to be provided at a ratio of roughly 1 to 10 for toddlers and preschool children. A maximum toilet height of 11 inches and a maximum hand sink height of 22 inches are recommended. (Step stools or low platforms are used where toilets or hand-washing facilities are too high.)
- Every toilet room door is to be easily opened by children from the inside and the outside.
- A hand-washing sink is to be accessible to each classroom and group of infants.
- Utility sinks are to be used for rinsing soiled clothing or for cleaning toilet training equipment.
- A separate sink is provided for washing and sanitizing mops and cleaning equipment.
- Diapering areas are not to be located in dental hygiene or food preparation areas and are never to be used for the temporary placement or serving of food.
- Diapering areas are to be separate from adult bathrooms.
- Changing tables should have impervious, nonabsorbent, clean surfaces, and be sturdy, at an appropriate height for adults to work at when standing, and equipped with railings.

- Storage areas are to be close to or within diapering areas for clean diapers, wipes, gloves, and other supplies.
- Hand-washing sinks are to be adjacent to the diaper changing tables.

Performance Standard 1304.53(a)(10)(xv): Toilet training equipment is provided for children being toilet trained.

Guidance: Child-sized toilets, safe step aids that can be sanitized, and modified toilet seats (where there are only adult-sized toilets) should be used in all facilities. If child-sized toilets, step-aids, or modified toilet seats cannot be used, potty chairs that are easily sanitized are to be provided for toddlers, preschoolers, and children with disabilities who require them. Hand-washing sinks must be located nearby.

Performance Standard 1304.53(a)(10)(xvi): All sewage and liquid waste is disposed of through a locally approved sewer system, and garbage and trash are stored in a safe and sanitary manner.

Guidance: Waste is to be kept away from children's indoor and outdoor activity areas used for storage and preparation of food. Raw or treated wastes are not to be discharged on ground surfaces.

Performance Standard 1304.53(a)(10)(xvii): Adequate provisions are made for children with disabilities to ensure their safety, comfort, and participation. (See Section 4.1.2 of this guide.)

Guidance: The facility is to be accessible to persons with disabilities by making accommodations such as ramps and railings, wider pathways, and wheel-chair-accessible toilets, sinks, and drinking fountains. The physical environment is to be maintained in a consistent and stable manner for children with visual or hearing problems. Appropriate space is to be provided for children who may require individual therapy or activities.

Performance Standard 1304.53(b)(1): Grantee and delegate agency must provide and arrange sufficient equipment, toys, materials, and furniture to meet the needs and facilitate the participation of children and adults.

Performance Standard 1304.53(b)(1)(i): Equipment, materials, and furniture are supportive of the specific educational objectives of the program:

Guidance: (If fixed) A variety of climbing structures and steps as well as other structures that are safe for exploration are provided.

In outdoor environments, a variety of materials are provided as well as equipment and structures for climbing, riding, pushing, pulling, and digging. Materials should be offered that extend indoor activities to the outdoors.

Performance Standard 1304.53(b)(1)(ii): Equipment, materials and furniture are supportive of the cultural and ethnic backgrounds of the children.

Guidance: Materials used should demonstrate acceptance of each child's gender, family, race, language, and culture. Environments should be established and maintained to support the culture of the children. The outdoor area safely should utilize the natural environment, adding culturally relevant structures and materials when possible.

Performance Standard 1304.53(b)(1)(iii): Equipment, materials, and furniture are age-appropriate, safe, and supportive of the abilities and developmental level of each child served, with adaptations if necessary for children with disabilities.

Guidance: All federally assisted programs, including Head Start, must be accessible to persons with disabilities, including staff, parents, and children. This does not mean that every building or part of a building must be physically accessible, but the program services as a whole must be accessible. Structural changes to make program services available are required if alternatives, such as reassignment of classes or moving to different rooms, are not possible. For nonverbal children, communication boards, computers, and other assistive technology devices may be helpful. Surfaces are to ensure safety of children with disabilities and promote their learning. Staff are to ensure that children with physical disabilities have chairs and other pieces of furniture of the correct size and type for their individual needs as they grow.

Performance Standard 1304.53(b)(1)(iv): Equipment, materials, and furniture are accessible, attractive, and inviting to children.

Guidance: Learning materials are to be easily accessible on low shelves that children can explore by themselves. Materials are to have interesting shapes, textures, and colors that invite play, exploration, and learning. Equipment and furniture is to be child-sized, age-appropriate, and adaptable for children's use. Equipment and materials should be selected and designed to give children choices.

Performance Standard 1304.53(b)(1)(v): Head Start equipment, materials, and furniture are designed to provide a variety of learning experiences and to encourage each child to experiment and explore.

Performance Standard 1304.53(b)(1)(vi): Head Start equipment, materials, and furniture (fixed) are safe, durable, and kept in good condition.

Performance Standard 1304.53(b)(1)(vii): Head Start equipment is stored in a safe and orderly fashion when not in use.

Guidance: Each activity area is to have its own storage space. As much space as possible should be reserved for children's use by storing materials in locations not used by children. Children must not be able to pull over bookcases and shelves. Outdoor equipment is to be stored in a shed or other enclosed storage space to protect these items and to keep the outdoor area free from clutter.

APPENDIX C:

METRIC/ENGLISH CONVERSIONS

The list below includes metric to English conversions used in the guide:

Unit of length

25.4 millimeters = 1 inch

1 meter = 3 feet, 3 3/8 inches

Units of Area

1 square meter = 10.76 square feet

Units of Weight

1 kilogram = 2.2 pounds

Units of Illumination

10 lux = 1 foot candle

Units of Volume

1 cubic meter = 35.3 cubic feet

Units of Temperature

Celsius Temperature = (Fahrenheit degree - 32) x 5/9

Fahrenheit Temperature = 9/5 x Celsius degree + 32

APPENDIX D:

POISONOUS AND NONPOISONOUS PLANTS

Many popular house and garden plants are poisonous and can produce minor to severe illness. The following list provided by the Maryland Poison Center is not exhaustive. Check with local extensions of the U.S. Department of Agriculture for more information about the nature of common plantings in specific locations.

Common Poisonous Plants

Amaryllis
Azalea
Barberry
Black locust
Boxwood
Caladium
Castor bean
Chinaberry
Chinese evergreen
Chrysanthemum
Crown of thorns
Daffodil
Dumbcane/Dieffen
bachia
English ivy
Euonymous
Four o'clock
Fruit pits or seeds
Gladiola
Holly
Hyacinth
Iris
Jerusalem cherry
Jimsonweed
Jonquil
Lily-of-the valley
Mistletoe
Mountain laurel
Narcissus
Nephthytis/Arrowhead
Nightshade family
Oak (acorns)
Peony
Philodendron family
Poison ivy/oak/sumac
Pokeweed
Privet
Rhododendron
Snowball
bush/Hydrangea
Water hemlock
Wisteria
Yew

Common Nonpoisonous Plants

African violet
Christmas cactus
Coleus
Corn plant
Crocus (spring)
Dandelion
Dogwood
Dracaena
Easter lily
Ferns
Ficus*
Forsythia
Fuchsia
Geranium
Hibiscus
Honeysuckle
Impatiens
Jade plant
Lilac
Marigold
Mulberry (ripe berries only)
Norfolk pine tree
Peperomia
Petunia

Poinsettia*
Prayer plant
Pyracantha/Firethorn
Rose
Rubber tree plant
Sansevieria/Snake plant
Scheffiera*
Spider plant
Swedish Ivy
Tulip*
Wandering Jew
Wax plant
Wild strawberry/Snakeberry
Zebra plant

*Sap may be irritating

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